

Chapter 3

Construction SWPPP Standards and Requirements

Table of Contents

Chapter	Title	Page
3.1	<u>Construction SWPPP Standards Introduction</u>	1
3.1.1	Background Information	1
3.1.2	Standards Applicability to Construction Projects	2
3.2	<u>Construction SWPPP Requirements and Approval Process</u>	3
3.2.1	Construction SWPPP Tier Levels	3
3.2.2	Determination of Construction SWPPP Tier Level	3
3.2.3	Qualified Persons to Prepare a Construction SWPPP	5
3.2.4	Storm Water Certification Forms	5
3.2.5	Project Threat to Storm water Quality	6
3.2.6	Tier 3 Construction SWPPP Requirements	6
3.2.6.1	Required Elements for a Tier 3 Construction SWPPP	7
3.2.6.2	Required Format for a Tier 3 Construction SWPPP	7
3.2.6.3	General Construction Permit Compliance Procedures	8
3.2.7	Tier 2 Construction SWPPP Requirements	9
3.2.7.1	Required Elements for a Tier 2 Construction SWPPP	9
3.2.7.2	Required Format for a Tier 2 Construction SWPPP	9
3.2.8	Tier 1 Construction SWPPP Requirements	9
3.2.8.1	Required Standard Format for a Tier 1 Construction SWPPP	9
3.2.9	General Linear Utility Permit Compliance Procedures	10
3.2.9.1	Notice of Intent	11
3.2.9.2	General Linear Utility Permit – Tier 1 SWPPP	11
2.9.2.2.1	Linear Construction Activity Notification (LCAN)	11
2.9.2.2.2	Linear Construction Termination Notification (LCTN)	11
3.2.9.3	Notice of Termination (NOT)	11
3.2.9.4	City General Operating Permit (GOP) Requirements	11
3.3	<u>Construction BMP Standards</u>	13
3.3.1	Background Information	13
3.3.2	Minimum BMP Requirements	13
3.3.3	Erosion and Sediment Control BMPs	14
3.3.3.1	Erosion Control BMPs	14
3.3.3.2	Sediment Control BMPs	15
3.3.3.3	Wind Erosion Control BMPs	16
3.3.3.4	Tracking Control BMPs	16
3.3.4	Non-Storm Water Management BMPs	17
3.3.5	Waste Management and Materials Pollution Control BMPs	18
3.3.6	General Site Management Requirements	18
3.3.6.1	Dry Season Site Management Requirements	19
3.3.6.2	Rainy Season Site Management Requirements	20
3.3.7	Additional Controls for Construction Sites	20
3.3.8	Maximum Disturbed Area for Erosion Control	21
3.3.9	Advanced Treatment Methods	21

3.3.10	City Standard Storm Water Pollution Prevention Notes	22
3.4	Storm Water BMP Inspection and Maintenance	23
3.4.1	General Information.....	23
3.4.2	Inspection of Construction Sites.....	23
3.4.3	City Storm Water BMP Inspection Frequency	23
3.4.4	City Storm Water BMP Inspection Requirements.....	24
3.4.5	Qualified Person Required	25

Appendices

Appendix A	-	Project Threat Assessment Worksheet for Determination of Construction SWPPP Tier Level
Appendix B	-	Storm Water Compliance Forms
Appendix C	-	Construction Threat Assessment Worksheet for Determination of Storm Water Compliance Inspection Rating
Appendix D	-	Tier 3 Construction SWPPP Required Elements Checklist
Appendix E	-	Tier 3 Construction SWPPP CASQA Format Checklist
Appendix F	-	Tier 2 Construction SWPPP Template
Appendix G	-	Tier 2 Construction SWPPP Checklist
Appendix H	-	Tier 1 Construction SWPPP Template
Appendix I	-	City Standard Storm Water Pollution Prevention Notes
Appendix J	-	Excerpts from EPA Guidelines for Selecting Construction BMPs
Appendix K	-	Reference Documents

List of Tables

Table 1:	City Construction Permits Exempt from Construction SWPPP Requirements	4
Table 2:	Erosion Control BMPs	14
Table 3:	Sediment Control BMPs	15
Table 4:	Wind Erosion Control BMPs.....	16
Table 5:	Tracking Control BMPs	16
Table 6:	Non-Storm Water Management BMPs.....	17
Table 7:	Waste Management and Materials Pollution Control BMPs.....	18
Table 8:	Inspection Frequency.....	24

3.1 Construction SWPPP Standards Introduction

3.1.1 Background Information

The Construction Storm Water Pollution Prevention Plan (SWPPP) standards and requirements described herein were established to ensure construction compliance with the City of Carlsbad Storm Water Ordinance and the Municipal Permit, as issued by the Regional Water Quality Control Board for the San Diego Region (see below for Municipal Permit reference details). This chapter must be used in conjunction with other chapters of this manual to ensure full compliance with both construction and post construction storm water requirements. This chapter addresses the need for temporary Best Management Practices (BMPs) during construction activities to minimize the mobilization of pollutants such as sediment and to minimize the exposure of storm water to pollutants.

Pursuant to Titles 11, 15 and 18 of the Carlsbad Municipal Code, all construction activities within the City, whether the City issues a construction permit or not, are subject to the provisions of the standards and requirements of this manual.

The water quality protection measures and construction procedures described in this chapter of the manual are intended to ensure construction activity compliance with the following State and Regional water quality permits:

Municipal Permit -more particularly described as San Diego California Regional Water Quality Control Board San Diego Region Order No. R9-2007-01, NPDES No. CAS0108758 Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority and any amendment, revision or re-issuance thereof; and,

General Construction Permit - more particularly described as NPDES General Permit for Storm Water Discharges Associated with Construction Activity, Water Quality Order No. 99-08-DWQ, NPDES No. CAS000002, issued by the State Water Resources Control Board (Construction General Permit), and any amendment, revision or re-issuance thereof; and,

General Linear Utility Permit - more particularly described as NPDES General Permit for Storm Water Discharges Associated with Construction Activity from Small Linear Underground/Overhead Projects, Water Quality Order 2003-0007 – DWQ issued by the State Water Resources Control Board, and any amendment, revision or re-issuance thereof.

3.1.2 Standards Applicability to Construction Projects

All construction activities in the City of Carlsbad are subject to the requirements of the Municipal Permit. Construction activities that meet one or more of the following criteria are additionally subject to the requirements of the General Construction Permit.

Construction activities that:

- 1) Disturb one or more acres of land area;
- 2) Form part of a larger common plan of development that encompasses one or more acres of soil disturbance; or
- 3) Have the potential for significant water quality impairment.

The General Construction Permit does not apply to routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of an existing facility, nor does it include emergency construction activities required to protect public health and safety. Developers/owners/contractors should confirm with the San Diego Regional Water Quality Control Board (SDRWQCB) staff whether or not a particular routine maintenance activity is subject to the General Construction Permit.

Construction of small linear utility facility projects that are not subject to the General Construction Permit are subject to the requirements of the General Linear Utility Permit. This includes but is not limited to construction of any conveyance pipe for transportation of gaseous, liquid, liquescent or slurry material; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications; and, associated ancillary facilities. Developers/owners/contractors should confirm with the SDRWQCB staff whether or not a particular underground or overhead utility construction project is subject to the General Linear Utility Permit.

3.2 Construction SWPPP Requirements and Approval Process

3.2.1 Construction SWPPP Tier Levels

Every construction activity within the City that has the potential to negatively affect water quality must prepare a construction storm water pollution prevention plan (Construction SWPPP) whether or not the City issues a construction permit for the activity. To ensure compliance with all the various State and Regional permitting regulations, the City established a three-tiered system for the preparation of Construction SWPPPs. The tiers range from Tier 3 representing the highest threat to water quality to Tier 1 representing the lowest threat to water quality. The threshold triggers for each of the three tier levels are generally described below together with a reference to the applicable Construction SWPPP standards.

Tier 3 - Construction activities that impact one or more acres (individually or cumulatively through phased construction) or that, regardless of size, pose a significant potential for storm water quality impairment must prepare a Tier 3 Construction SWPPP in conformance with the standards and requirements of the Construction General Permit and City Standards.

Tier 2 – Construction activities that impact less than one acre and that pose a moderate threat to storm water quality must prepare a Tier 2 Construction SWPPP in conformance with City Standards. In the case of small linear underground/overhead utility projects, the project must also demonstrate compliance with the General Linear Utility Permit.

Tier 1 – Construction activities that impact less than one acre and pose a low threat to storm water quality must prepare a Tier 1 Construction SWPPP in conformance with City Standards. In the case of small linear underground/overhead utility projects, the project must also demonstrate compliance with the General Linear Utility Permit.

Exempt - Construction activities that pose no threat to storm water quality are exempt from the preparation of a Construction SWPPP; however, the construction activities must still comply with all construction BMPs required pursuant to Title 15 of the CMC and these standards.

3.2.2 Determination of Construction SWPPP Tier Level

The worksheet entitled “Project Threat Assessment Worksheet for Determination of Construction SWPPP Tier Level”, attached as Appendix A, shall be used to determine the appropriate tier level of Construction SWPPP for a proposed construction project. The worksheet is also used to determine whether the project is exempt from Construction SWPPP requirements. The completed worksheet shall be submitted with applications for each construction permit submitted to the City including building permits, grading permits and right-of-way permits.

To make a determination, the project reviewer starts with the assessment criteria located at the top of the worksheet along the left hand column and works downward through the various threat categories and assessment criteria. At the first point where the proposed project makes a match with the assessment criteria, a check is made in the box next to the criteria. The tier level listed in the right hand column in the same row as the selected assessment criteria is the required Construction SWPPP Tier Level for the project.

If none of the boxes in the Significant, Moderate or Low Threat Project Assessment Criteria categories are checked, then the project is exempt from the Construction SWPPP requirements. Proposed construction projects may be considered categorically exempt from the Construction SWPPP requirements when, and if, the project only requires issuance of one or more of the construction permit types shown on Table 1 below.

Exempt projects must still comply with all storm water best management practices pursuant to Title 15 of the Carlsbad Municipal Code and City Standards. If in the opinion of the City Engineer, an otherwise exempt project is, or potentially could pose, a threat to storm water quality, the City Engineer may require preparation and implementation of a Construction SWPPP at a tier level commensurate with the storm water threat

Table 1	
City Construction Permit Types Exempt from Construction SWPPP Requirements	
Electrical Permit Fire Additional Permit Fire Alarm Permit Fixed Systems Permit Mechanical Permit Mobile Home Permit Re-Roofing Permit	Patio Deck Plumbing Permit Sign Permit Spa – Factory Made Sprinkler Permit Water Discharge Permit

Cautionary Note - The Project Threat Assessment Worksheet represents the project proponent's assessment of the threat posed by a proposed construction project. City staff has responsibility for making the final assessment regarding the need for and tier level of Construction SWPPP required. The City staff decision is made after submission of the plan review application. A staff determination that the construction plan review application is subject to the preparation of a Construction SWPPP, or is subject to more stringent Construction SWPPP requirement than initially assessed by the applicant (project proponent), will result in the return of the plan review application as incomplete.

If applicants are unsure about the meaning of any of the assessment criteria described in the worksheet or need help in determining how to respond to one or more of the assessment criteria, they are strongly encouraged to seek assistance from Engineering Department Development Services staff prior to preparation of the Construction SWPPP and submission for construction plan review.

3.2.3 Qualified Persons to Prepare a Construction SWPPP

The project proponent is responsible for preparing the appropriate tier level Construction SWPPP. Tier 2 and Tier 3 Construction SWPPPs shall be prepared in accordance with the requirements of this manual. All Tier 2 and Tier 3 Construction SWPPPs shall be written, amended and certified by a Qualified SWPPP Preparer.

A Qualified SWPPP Preparer shall have one of the following registrations or certifications:

1. A California registered civil engineer,
2. A California registered geologist,
3. A California registered landscape architect,
4. A professional hydrologist registered through the American Institute of Hydrology,
5. A certified professional soil scientist registered through the Soil Science Society of America,
6. A certified professional in erosion and sediment control registered through Certified Professional in Erosion and Sediment Control, Inc.,
7. A certified professional in storm water quality registered through Certified Professional in Erosion and Sediment Control, Inc., or
8. A certified professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies.

Any hydrology or hydraulic calculations, soils reports or geotechnical reports prepared in support of a Tier 2 or Tier 3 Construction SWPPP must be prepared by a professional engineer with appropriate registration qualifications issued by the State of California.

The City Engineer may approve alternative means for establishing the certification of a Qualified SWPPP Preparer for Tier 2 or Tier 3 Construction SWPPPs upon submittal of a letter by the project proponent requesting approval of an alternative certification and presenting due cause why such alternative certification should be considered.

Projects requiring a Tier 1 Construction SWPPP shall use the City's Tier 1 Construction SWPPP Standard Template attached as Appendix H. No special qualification is required to prepare a Tier 1 Construction SWPPP.

3.2.4 Storm Water Certification Forms

For non-exempt projects, the project proponent must submit a certified Construction SWPPP (of the appropriate tier level) concurrent with any application for construction plan review including submittals for building plans, public and private improvement plans, grading plans, blasting plans, demolition plans, landscape plans and plans for right-of-way construction activities.

In addition to any other required construction plan review application submittal requirements, the project proponent must submit a completed and signed Storm Water Compliance Certification statement on the form prescribed in this Manual. A separate certification form is used corresponding to each of the three Construction SWPPP tier levels and for exempt projects. Copies of the required Storm Water Compliance Forms for Tier 2 and 3 Construction SWPPPs and for exempt projects are attached as Appendix B. The Storm Water Compliance statement for a Tier 1 Construction SWPPP is incorporated into the City's standard form Tier 1 Construction SWPPP attached as Appendix H.

After submittal of the application, City staff will review the Storm Water Compliance statement and either note concurrence with the proponents threat assessment at the bottom right hand corner of the Storm Water Compliance Form or reject the application as incomplete and return the application submittal package with a written explanation why the project threat assessment should be changed. See Cautionary Note in Chapter 3.2.1 above.

3.2.5 Project Threat to Storm Water Quality

Before a project construction permit can be issued for any project not found exempt from the Construction SWPPP requirements, a project's perceived threat to storm water quality must be determined. The Municipal Permit mandates that the City provide inspection commensurate with a project's perceived threat to storm water quality. The assessment criteria used to determine a project's perceived threat to storm water quality is not the same as the assessment criteria used to determine the tier level of Construction SWPPP for a project.

The worksheet entitled "Construction Threat Assessment Worksheet for Determination of Project's Perceived Threat to Storm Water Quality", attached as Appendix C, is used to determine the appropriate perceived threat to storm water compliance for a particular project. The projects perceived threat to storm water quality relates to the frequency of storm water compliance inspections required under the Municipal Permit and is one of the factors used to determine the City Construction SWPPP inspection fee. For more detailed information on storm water compliance inspections please refer to Chapter 3.4 of this manual.

3.2.6 Tier 3 Construction SWPPP Requirements

For projects that result in the disturbance of one acre or more of soil (individually or cumulatively through phased construction) and/or are determined to have a significant potential for water quality impairment, a Tier 3 Construction SWPPP shall be prepared in accordance with the requirements of the General Construction Permit and these standards.

3.2.6.1 Required Elements for Tier 3 Construction SWPPP

A Tier 3 Construction SWPPP must contain all of the elements required by the General Construction Permit, the Municipal Permit and these standards. The *TIER 3 CONSTRUCTION SWPPP REQUIRED ELEMENTS CHECKLIST*, attached as Appendix B, provides a complete listing of the required elements for a Tier 3 Construction SWPPP together with the regulatory source for each listed element. The checklist utilizes the same formatting as the checklist prepared by the State Water Resources Control Board entitled *STORM WATER POLLUTION PREVENTION PLAN AND MONITORING PROGRAM CHECKLIST*, modified to include elements required by the Municipal Permit and these standards.

The checklist is provided as an aid to those unfamiliar in the preparation of a Tier 3 Construction SWPPP. It is a comprehensive list of issues a SWPPP preparer must consider during the development of the document. Many sites, especially small construction sites, will not need to address some of the listed elements because they are not relevant to the site, the construction activities planned, or the construction materials used. The list allows the preparer to consider the applicability of the element to the specific circumstances of the site, and then determine to what extent the element should be addressed in the SWPPP.

The elements in the checklist are derived from Sections A, B, and C of the General Construction Permit, Section D.2. of the Municipal Permit, and these standards. The specific regulatory permit or City Standard chapter is listed in the second column. The third column indicates the page number(s) in the SWPPP document where the line item element is addressed. If the required element is not applicable to the specific project, then N/A should be noted in the fourth column. The fifth column is a space to note the scheduled date where any specified BMP elements will be implemented.

The use of this checklist does not guarantee compliance with the General Construction Storm Water Permit or these standards. Additionally, using the checklist to generate a Tier 3 Construction SWPPP is not a substitute for knowledge of the permit requirement. The checklist serves as a guidance document only. A site specific Tier 3 Construction SWPPP must be combined with proper and timely installation of the BMPs, thorough and frequent inspections, maintenance, and documentation.

3.2.6.2 Required Format for a Tier 3 Construction SWPPP

A Tier 3 Construction SWPPP shall be formatted in accordance with the SWPPP template included in the latest version of the "*California Stormwater BMP Handbook Construction*" prepared by the California Storm Water Quality Association (CASQA). As an alternative, the developer may use the Construction SWPPP format presented in the latest edition of the "*Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual*" prepared by Caltrans. The developer/owner/applicant must request approval for the use of the Caltrans format prior to submittal.

As an aide to the preparation of a Tier 3 Construction SWPPP document, the preparer may utilize the *Tier 3 CONSTRUCTION SWPPP CASQA FORMAT CHECKLIST (CASQA SWPPP Checklist)* included in Appendix C. The Tier 3 CASQA SWPPP Checklist is used by the City during its review of the Tier 3 Construction SWPPP documents.

The use of the checklist does not guarantee compliance with the General Construction Storm Water Permit or these standards. Additionally, using the checklist to generate a Tier 3 Construction SWPPP is not a substitute for knowledge of the permit requirement. The checklist serves as a guidance document only. A site specific Tier 3 Construction SWPPP must be combined with proper and timely installation of the BMPs, thorough and frequent inspections, maintenance, and documentation.

3.2.6.3 General Construction Permit Compliance Procedures

The General Construction Permit requires certain standard notifications to be made to the San Diego Regional Water Quality Control Board (SDRWQCB) prior to initiation of construction and after completion of construction as follows:

Notice of Intent (NOI) - It is the responsibility of the owner/developer/applicant to obtain coverage under the General Construction Permit through the filing of a Notice of Intent (NOI) with the SDRWQCB prior to commencement of construction activities. After City approval of the Tier 3 Construction SWPPP and prior to signature of the grading plans and/or issuance of grading permit for the project, the owner/developer/applicant shall submit the City approved Tier 3 Construction Permit, a filing fee and other required documentation to the SDRWQCB. Upon filing of the NOI, the project will be assigned a Waste Discharger's Identification (WDID) number by the SDRWQCB. The WDID number must be added into the Tier 3 Construction SWPPP and affixed onto the respective construction plans.

Notice of Termination (NOT) – Upon completion of the construction activity or transfer of ownership, the landowner shall file a NOT with the SDRWQCB certifying that all State and local requirements have been met in accordance with Special Provisions for Construction Activity, C.7, of the General Construction Permit.

Landowners who fail to obtain coverage of the General Construction Permit for storm water discharges to surface waters will be in violation of the CWA and the California Water Code.

To obtain a copy of the General Construction Permit, general information about the permit, fact sheets and copies of the various forms described below, visit the following website:

<http://www.swrcb.ca.gov/stormwtr/construction.html>

Once at the site click on the highlighted link titled "Construction General Permit, 99-08-DWQ".

3.2.7 Tier 2 Construction SWPPP Requirements

Construction activities that impact less than one acre and pose a moderate threat to water quality (as determined by the moderate threat assessment criteria contained in the Project Threat Assessment Worksheet attached as Appendix A) must prepare a Tier 2 Construction SWPPP in conformance with City Standards. Small linear underground or overhead utility projects must also comply with the requirements of the General Linear Utility Permit.

3.2.7.1 Required Elements for Tier 2 Construction SWPPP

A Tier 2 Construction SWPPP shall contain all of the elements as described on the “TIER 2 CONSTRUCTION SWPPP CHECKLIST” attached as Appendix G.

The use of the checklist does not guarantee compliance with these standards. The checklist serves as a guidance document only. A site specific Tier 2 Construction SWPPP must be combined with proper and timely installation of the BMPs, thorough and frequent inspections, maintenance, and documentation.

3.2.7.2 Required Format for Tier 2 Construction SWPPP

A Tier 2 Construction SWPPP shall be formatted in accordance with the template attached as Appendix F.

For small linear utility construction project subject to the General Linear Utility Permit, the project proponent shall follow the requirements of the General Linear Utility Permit for preparation of a Tier 2 Construction SWPPP. The Tier 2 SWPPP specified in the General Linear Utility Permit shall be submitted to the City in lieu of the City standard form Tier 2 Construction SWPPP.

3.2.8 Tier 1 Construction SWPPP Requirements

Construction activities that impact less than one acre and pose a low threat to water quality (as determined by the low threat assessment criteria contained in the Project Threat Assessment Worksheet attached as Appendix A) must prepare a standard format Tier 1 Construction SWPPP in conformance with City Standards. Small linear underground or overhead utility projects must also comply with the requirements of the General Linear Utility Permit.

3.2.8.1 Required Standard Format for Tier 1 Construction SWPPP

A Tier 1 Construction SWPPP shall utilize the standard form Tier 1 Construction SWPPP template attached as Appendix H. The standard form template includes the two sheets containing standard storm water prevention construction notes, a project information block, a Storm Water Compliance Statement, City approval block and a Best Management Practice (BMP) Checklist Table.

A Tier 1 level project that receives a “low perceived threat to storm water quality” rating as determined by the Construction Threat Assessment Worksheet, attached as Appendix C, need only complete and sign the first two sheets of the template. A Tier 1 level project that receives a “medium perceived threat to storm water quality” rating as determined by the Construction Threat Assessment Worksheet must additionally, attach

a site plan map sheet(s) showing the proposed construction site and depicting the areas of proposed construction and proposed location of structural BMPs. For a more detail description regarding the site plan requirements, see the site plan instruction sheet included with the template in Appendix H.

For all Tier 1 Construction SWPPPs, the property owner or owner's agent must complete the information in the Project Information block, check the appropriate boxes in the BMP Checklist Table and fill out and sign the Storm Water Compliance Statement. The form is intended to be completed as an "over the counter" type document for processing of construction permits for projects with a "low perceived threat to storm water quality". Projects with a "medium perceived threat to storm water quality", may require additional staff time to review the site plan included with the Tier 1 Construction SWPPP.

The BMP Checklist Table on page two of the standard form template is intended to be completed by the project proponent. The project proponent begins by checking the box to the left of each construction activity that will be performed during construction of the proposed project. Then, for each checked activity, the project proponent will pick one or more of the BMPs described along the top of the table that will be used to prevent storm water pollution resulting from that specific activity. The project proponent will then make a check in the box along the particular construction activity row that corresponds with the column for each BMP selected to help mitigate the potential storm water pollution effects of the activity. This process is repeated until all appropriate BMP boxes have been checked corresponding to each of the checked construction activities. Blank columns are included on the form to allow the applicant to add additional proposed BMPs not included on the standard table.

The owner/developer/contractor performing the construction work is responsible for ensuring that each of the selected BMPs is appropriately incorporated into the project during construction. The use of the BMP Checklist Table does not guarantee compliance with these standards. The BMP Checklist Table serves as a guidance document only. Additional BMPs may be required if the selected BMP(s) are shown to be ineffective or not relevant to a particular construction activity.

For small linear utility construction project subject to the General Linear Utility Permit, the project proponent shall follow the requirements of the General Linear Utility Permit for preparation of a Tier 1 Construction SWPPP. The Tier 1 SWPPP specified in the General Linear Utility Permit shall be submitted to the City in lieu of the City standard form Tier 1 Construction SWPPP.

3.2.9 General Linear Utility Permit Compliance Procedures

The General Linear Utility Permit requires certain standard notifications to be made to the San Diego Regional Water Quality Control Board (SDRWQCB) prior to initiation of construction and after completion of construction as described below. To obtain a copy of the General Linear Utility Permit, general information about the permit, fact sheets and copies of the various forms described below, visit the following website:

<http://www.swrcb.ca.gov/stormwtr/construction.html>

Once at the site click on the highlighted link titled "Small LUP General Permit".

3.2.9.1 Notice of Intent (NOI)

It is the responsibility of the owner/developer/applicant to obtain coverage under the General Linear Permit through the filing of a Notice of Intent (NOI) with the SDRWQCB prior to commencement of construction activities. After City approval of the Tier 2 or Tier 1 Construction SWPPP and prior to issuance of grading and/or right-of-way permit for the project, the project proponent shall submit the City approved Construction Permit, a filing fee and other required documentation to the SDRWQCB. Upon filing of the NOI, the project will be assigned a Waste Discharger's Identification (WDID) number by the SDRWQCB. The WDID number must be added into the Construction SWPPP and affixed onto the respective construction plans

3.2.9.2 General Linear Utility Permit - Tier 1 SWPPP

A single Tier 1 SWPPP prepared in accordance with the General Linear Utility Permit may authorize construction of any number of small utility projects. The Notice of Intent (NOI) and corresponding WDID number remains in effect until the discharger requests termination and such termination request is approved by the SDRWQCB.

3.2.9.2.1 Linear Construction Activity Notification (LCAN)

Prior to initiation of construction for each small utility project covered by the Tier 1 SWPPP, the discharger must submit a LCAN to the SDRWQCB prior to start of construction on the form provided for such purpose by the SDRWQCB. Alternatively, the discharger may submit a LCAN at least quarterly listing multiple small utility projects that will be constructed during the next quarter.

3.2.9.2.2 Linear Construction Termination Notification (LCTN)

At the conclusion of construction of small utility project covered by a Tier 1 SWPPP, the discharger must file a LCTN with the SDRWQCB certifying that the site was in full compliance with the requirements of the General Linear Utility Permit. The discharger may submit a single LCTN for multiple projects completed over a specified period of time. The LCTN submittal must include all required documentation requested by the SDRWQCB.

3.2.9.3 Notice of Termination (NOT)

Upon completion of the construction activity the discharger shall file a NOT with the SDRWQCB certifying that all construction activities were completed in full compliance with the requirements of the General Linear Utility Permit. For Tier 1 SWPPPs, filing of the NOT, and approval of the NOT by the SDRWQCB, will terminate permit coverage and work on additional small utility projects will no longer be permitted without obtaining an new Tier 1 or Tier 2 SWPPP. A NOT for a Tier 2 SWPPP indicates that the specified small utility project is complete and all work was done in compliance with the General Linear Utility Permit. When filing the NOT dischargers must use the NOT forms provided by the SDRWQCB.

3.2.9.4 City General Operating Permit (GOP)

The City's GOP procedures are intended to provide a mechanism for utility operators to conduct routine maintenance operations under a single permit. To avoid the need for

preparing and processing separate Construction SWPPPs for each routine maintenance operation, the City will allow preparation of a single Tier 1 Construction SWPPP to cover multiple small utility projects. The process will follow the same procedures as for a Tier 1 SWPPP prepared and processed in accordance with City Standards and the requirements of the General Linear Utility Permit.

The notification procedures described above shall apply with the following addition:

1. A copy of each LCAN shall be faxed to the City Construction Management and Inspection Division a minimum of 24 hours prior to start of construction. A copy of the fax notification shall be kept at the construction site. The copy shall be presented and shown upon demand to any City Official for verification of authority to work. A lack of 24-hour notification to the City for intended work may subject the operator to a stop-work notice.
2. A copy of the LCTN shall be submitted to the City Construction Management and Inspection Division concurrent with its submittal to the RWQCB.
3. A copy of the NOT shall be submitted to the City Construction Management and Inspection Division concurrent with its submittal to the RWQCB.

Any Small Utility Project that meets the requirements of a Tier 2 SWPPP pursuant to the General Linear Utility Permit requirements shall process a Tier 2 SWPPP consistent with Tier 2 Construction SWPPP procedures described above.

3.3 Construction BMP Standards

3.3.1 Background Information

Construction Best Management Practices (BMPs) are the schedules of activities, prohibitions of practices, maintenance procedures and other management practices employed during construction activities to prevent or reduce pollution of the ocean, lagoons, lakes, streams and other sensitive water bodies and water courses. Construction BMPs also include the physical devices and structural construction control measures designed to prevent soil erosion from occurring or to contain sediment before it leaves the construction site. The BMPs required pursuant this manual are also intended to protect the health, safety and welfare of the public and to prevent damage to adjoining public and private property resulting from construction activities.

The City of Carlsbad has adopted the California Stormwater Quality Association "Construction Stormwater Best Management Practice Handbook" (CASQA Construction Handbook) latest edition as its preferred source for construction BMPs. All BMP reference numbers used in this manual correspond to the BMP Fact Sheets included within the CASQA Construction Handbook unless specifically noted otherwise. With the approval of the City Engineer, or his/her designee, the City may accept comparable BMPs from reputable alternative sources such as Caltrans.

This manual is not intended as a comprehensive engineering or design manual on BMPs. The engineer or other qualified person, who prepares the Construction SWPPP, must utilize their individual knowledge and experience of BMPs together with the tools and reference materials described in this manual, or found elsewhere, to prepare an appropriate and adequate Construction SWPPP document.

The BMP categories below coincide with the BMP categories described in the CASQA Construction Handbook and provide a kind of checklist of the BMPs that are to be included in a Construction SWPPP. The combination or suite of BMPs that are included in a Construction SWPPP must reflect the specific conditions at the proposed construction site. An effective SWPPP includes a suite of BMPs that are designed to work together.

3.3.2 Minimum BMP Requirements

In accordance with the Municipal Permit, minimum BMPs must be installed for all projects to be implemented year-round. Because all sites, regardless of the priority, must be protected to prevent discharges to the maximum extent practicable, the minimum BMP requirements are the same for all projects requiring a Construction SWPPP. Each site must be protected by an effective combination of erosion and sediment controls, non-storm water management, materials and waste management controls, and general site management controls. The chapters following this chapter describe the minimum BMPs for each of the above listed BMP types that must be

incorporated into each Construction SWPPP prepared in accordance with these standards.

If particular BMPs are infeasible at any specific site, the owner/developer/contractor must install other equivalent BMPs. At any time of the year, an inactive site must be fully protected from erosion and discharges of sediment. A site will be considered inactive if construction activities have ceased for a period of ten or more consecutive days. It is also the owner/developer/contractors responsibility at both active and inactive sites to implement a plan to address all potential storm water and non-storm water discharges.

3.3.3 Erosion and Sediment Control BMPs

Erosion and sediment control BMPs are the structural and non-structural practices used during the construction process to keep sediment in place (erosion control) and to capture any sediment that is moved by stormwater before it leaves the site (sediment control). Erosion controls, keeping soil where it is, are the heart of any effective Construction SWPPP. The Construction SWPPP should rely on erosion controls as the primary means of preventing stormwater pollution. Sediment controls provide a necessary second line of defense to properly designed and installed erosion controls.

3.3.3.1 Erosion Control BMPs

Erosion control is any source control practice that protects the soil surface and prevents soil particles from being detached by rainfall, flowing water or wind. Erosion control is referred to as soil stabilization. Erosion control consists of preparing the soil surface and implementing one or more of the BMPs shown in Table 2.

All inactive soil-disturbed areas on the project site, and most active areas prior to the onset of rain, must be protected from erosion. Soil disturbed areas may include relatively flat areas as well as slopes. Typically, steep slopes and large exposed areas require the most robust erosion controls; flatter slopes and smaller areas still require protection, but less costly materials may be appropriate for these areas, allowing savings to be directed to the more robust BMPs for steep slopes and large exposed areas. To be effective, erosion control BMPs must be implemented at slopes and disturbed areas to protect them from concentrated flows.

Table 2 Erosion Control BMPs	
CASQA BMP#	BMP Name
EC-1	Scheduling
EC-2	Preservation of Existing Vegetation
EC-3	Hydraulic Mulch
EC-4	Hydroseeding
EC-5	Soil Binders
EC-6	Straw Mulch
EC-7	Geotextiles & Mats
EC-8	Wood Mulching
EC-9	Earth Dikes and Drainage Swales
EC-10	Velocity Dissipation
EC-11	Slope Drains
EC-12	Streambank Stabilization
EC-13	Polyacrylamide

Some erosion control BMPs can be used effectively to temporarily prevent erosion by concentrated flows. These BMPs, used alone or in combination, prevent erosion by intercepting, diverting, conveying, and discharging concentrated flows in a manner that prevents soil detachment and transport. Temporary concentrated flow conveyance

controls may be required to direct run-on around or through the project in a non-erodible fashion. Temporary concentrated flow conveyance controls include EC-9 (Earth Dikes and Drainage Swales), EC-10 (Velocity Dissipation Devices) and EC-11 (Slope Drains).

3.3.3.2 Sediment Control BMPs

Sediment control is any practice that traps soil particles after they have been detached and moved by rain, flowing water, or wind. Sediment control measures are usually passive systems that rely on filtering or settling the particles out of the water or wind that is transporting them. Sediment control practices include the BMPs listed in Table 3.

Sediment control BMPs include those practices that intercept and slow or detain the flow of stormwater to allow sediment to settle and be trapped. Sediment control practices can consist of installing linear sediment barriers (such as silt fence, sandbag barrier, and straw bale barrier); providing fiber rolls, gravel bag berms, or check dams to break up slope length or flow; or constructing a sediment trap or sediment basin. Linear sediment barriers are typically placed below the toe of exposed and erodible slopes, down-slope of exposed soil areas, around soil stockpiles, and at other appropriate locations along the site perimeter.

Table 3 Sediment Control BMPs	
CASQA BMP#	BMP Name
SE-1	Silt Fence
SE-2	Sediment Basin
SE-3	Sediment Trap
SE-4	Check Dam
SE-5	Fiber Rolls
SE-6	Gravel Bag Berm
SE-7	Street Sweeping and Vacuuming
SE-8	Sandbag Barrier
SE-9	Straw Bale Barrier
SE-10	Storm Drain Inlet Protection
SE-11	Chemical Treatment

A few BMPs may control both sediment and erosion, for example, fiber rolls and sand bag barriers. The CASQA Construction Handbook classifies these BMPs as either erosion control (EC) or sediment control (SC) based on the BMPs most common and effective use. Sediment control BMPs are most effective when used in conjunction with erosion control BMPs. The combination of erosion control and sediment control is usually the most effective means to prevent sediment from leaving the project site and potentially entering storm drains or receiving waters. The City of Carlsbad requires that the discharger implement an effective combination of erosion and sediment controls.

Under limited circumstances, sediment control, alone may be appropriate. For example, applying erosion control BMPs to an area where excavation, filling, compaction, or grading is currently under way may not be feasible when storms come unexpectedly. Use of sediment controls by establishing perimeter control on these areas may be appropriate and allowable provided the following conditions are met:

- Weather monitoring is under way.
- Inactive soil-disturbed areas have been protected with an effective combination of erosion and sediment controls.
- An adequate supply of sediment control materials is stored on-site and there are sufficient forces of labor and equipment available to implement sediment controls on the active area prior to the onset of rain.
- The SWPPP adequately describes the methods to protect active areas.

3.3.3.3 Wind Erosion Control BMPs

Wind erosion control consists of applying water or other dust palliatives to prevent or alleviate dust nuisance. Wind erosion control best management practices BMPs are shown in Table 4.

Table 4 Wind Erosion Control BMPs	
CASQA BMP#	BMP Name
WE-1	Wind Erosion Control

Other BMPs that are sometimes applied to disturbed soil areas in order to control wind erosion are BMPs EC-2 through EC-7, shown in Chapter 3.3.2.1 above. Be advised that many of the dust palliatives may contain compounds that have an unknown effect on stormwater. A sampling and analysis protocol to test for stormwater contamination from exposure to such compounds is required in the SWPPP.

3.3.3.4 Tracking Control BMPs

Tracking control consists of preventing or reducing the tracking of sediment off-site by vehicles leaving the construction area. Tracking control best management practices (BMPs) are shown in Table 5.

Table 5 Tracking Control BMPs	
CASQA BMP#	BMP Name
TR-1	Stabilized Construction Ingress/Egress
TR-2	Stabilized Construction Roadway
TR-3	Ingress/Egress Tire Wash

Attention to control of tracking sediment off site is highly recommended, as dirty streets and roads near a construction site create a nuisance to the public and generate constituent complaints to elected officials and regulators. These complaints often result in immediate inspections and regulatory actions.

3.3.4 Non-Storm Water Management BMPs

Carlsbad Standards prohibit the discharge of materials other than stormwater and authorized non-stormwater discharges. It is recognized that certain non-stormwater discharges may be necessary for the completion of construction projects. Such discharges include but are not limited to irrigation of vegetative erosion control measures, pipe flushing and testing, and street cleaning.

Non-stormwater management BMPs are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source or eliminating off-site discharge. These practices involve day-to-day operations of the construction site and are usually under the control of the contractor. These BMPs are also referred to as “good housekeeping practices” which involve keeping a clean, orderly construction site.

Non-stormwater management BMPs also include procedures and practices designed to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning, fueling, and maintenance operations to stormwater drainage systems or to watercourses.

Table 6 lists standard non-stormwater management BMPs. All these BMPs must be implemented depending on the conditions and applicability of deployment described as part of the BMP.

It is recommended that owners and contractors be vigilant regarding implementation of these BMPs, including making their implementation a condition of continued employment, and part of all prime and subcontract agreements. By doing so, the chance of inadvertent violation by an uncaring individual can be prevented, potentially saving thousands of dollars in fines and project delays. Also, if procedures are not properly implemented and/or if BMPs are compromised then the discharge is subject to sampling and analysis requirements contained in the General Construction Permit.

Table 6 Non-Storm Water Management BMPs	
CASQA BMP#	BMP Name
NS-1	Water Conservation Practices
NS-2	Dewatering Operations
NS-3	Paving and Grinding Operations
NS-4	Temporary Stream Crossing
NS-5	Clear Water Diversion
NS-6	Illicit Connection/Discharge
NS-7	Potable Water/Irrigation
NS-8	Vehicle and Equipment Cleaning
NS-9	Vehicle and Equipment Fueling
NS-10	Vehicle and Equipment Maintenance
NS-11	Pile Driving Operations
NS-12	Concrete Curing
NS-13	Concrete Finishing
NS-14	Material and Equipment Use
NS-15	Demolition Adjacent to Water
NS-16	Temporary Batch Plants

3.3.5 Waste Management and Materials Pollution Control BMPs

Waste management and materials pollution control BMPs, like non-stormwater management BMPs, are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with stormwater. These BMPs also involve day-to-day operations of the construction site, are under the control of the contractor, and are additional “good housekeeping practices” which involve keeping a clean, orderly construction site.

Waste management consists of implementing procedural and structural BMPs for handling, storing, and disposing of wastes generated by a construction project. The objective is to prevent the release of waste materials into stormwater runoff or discharges through proper management of the following types of wastes:

- Solid
- Sanitary
- Hazardous
- Equipment-related wastes

Materials pollution control (also called materials handling) consists of implementing procedural and structural BMPs in the handling, storing, and the use of construction materials. The BMPs are intended to prevent the release of pollutants during stormwater and non-stormwater discharges. The objective is to prevent or reduce the opportunity for contamination of stormwater runoff from construction materials by covering and/or providing secondary containment of storage areas, and by taking adequate precautions when handling materials. These controls must be implemented for all applicable activities, material usage, and site conditions.

Table 7 lists the waste management and materials pollution control BMPs. It is important to note that these BMPs should be implemented depending on the conditions/applicability of deployment described as part of the BMP.

Table 7 Waste Management and Materials Pollution Control BMPs	
CASQA BMP#	BMP Name
WM-1	Material Delivery and Storage
WM-2	Material Use
WM-3	Stockpile Management
WM-4	Spill Prevention and Control
WM-5	Solid Waste Management
WM-6	Hazardous Waste Management
WM-7	Contaminated Soil Management
WM-8	Concrete Waste Management
WM-9	Sanitary/ Septic Waste Management
WM-10	Liquid Waste Management

3.3.6 General Site Management Requirements

Every construction site shall implement the following minimum general site management requirements:

1. Emphasize pollution prevention where appropriate; and,
2. Implement all the requirements of the site approved Construction SWPPP to manage storm water and non-storm water discharges from the site at all times; and,

3. Minimize areas that are cleared and graded to only the portion of the site that is necessary for construction; and,
4. Minimize exposure time of disturbed soil areas; and,
5. Minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, then implement additional BMPs for any rain events that may occur; and,
6. Limit the amount of exposed soil allowed at one time to the amount that which can be adequately protected by deploying standby erosion control and sediment control BMPs prior to a predicted rainstorm; and,
7. Temporarily stabilize and/or re-seed disturbed soil areas as rapidly as possible; and,
8. Preserve the natural hydrologic features of the site where feasible; and,
9. Preserve riparian buffers and corridors where feasible; and,
10. Maintain all BMPs until removed; and,
11. Retain, reduce and properly manage all pollutant discharges on-site to the MEP standard.

3.3.6.1 Dry Season Site Management Requirements

The following minimum BMPs must be in place at all construction sites throughout the year during both the wet and dry seasons:

1. All graded areas must have erosion protection BMPs properly installed
2. Adequate perimeter protection BMPs must be installed and maintained.
3. Adequate sediment control BMPs must be installed and maintained.
4. Adequate BMPs to control offsite sediment tracking must be installed and maintained.
5. A minimum of 125% of the material needed to install standby BMPs to protect the exposed areas from erosion and prevent sediment discharges, must be stored onsite. Areas already protected from erosion using physical stabilization or established vegetation stabilization BMPs are not considered to be “exposed” for purposes of this requirement.
6. The owner/developer/contractor must have an approved “weather triggered” action plan and be able to deploy standby BMPs to completely protect the exposed portions of the site within 48 hours of a predicted storm event (a predicted storm event is defined as a forecasted, 40% chance of rain by 5-day National Weather Service). On request, the owner/developer/contractor must provide proof of this capability that is acceptable to the City.
7. Deployment of physical or vegetation erosion control BMPs must commence as soon as slopes are completed. The project proponent may not continue to rely on the ability to deploy standby BMP materials to prevent erosion of slopes that have been completed.
8. The area that can be cleared, graded, and left exposed at one time is limited to the amount of acreage that the contractor can adequately protect prior to a predicted rainstorm. For larger sites, grading should be phased (See Chapter 3.3.8). It may be necessary to deploy erosion and sediment control BMPs in areas that are not completed, but are not actively being worked before additional grading is done.

3.3.6.2 Rainy Season Site Management Requirements

In addition to the dry season requirements described above, the following additional minimum BMPs must be in place at all sites during the rainy season, which is defined as October 1st through April 30th:

- 1) Erosion control, perimeter protection and sediment control BMPs must be upgraded if necessary to provide sufficient protection for storms likely to occur during the rainy season.
- 2) Adequate physical or vegetation erosion control BMPs must be installed and established for all completed slopes prior to the start of the rainy season. These BMPs must be maintained throughout the rainy season. If a selected BMP fails, it must be repaired and improved, or replaced with an acceptable alternate as soon as it is safe to do so. The failure of a BMP indicates it was not adequate for the circumstances in which it was used. Repairs or replacements must therefore put a more robust BMP in place.
- 3) The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMPs prior to a predicted rainstorm.
- 4) A disturbed area that is not completed but that is not being actively graded must be fully protected from erosion if left for 10 or more days. The ability to deploy standby BMP materials is not sufficient for these areas. BMPs must actually be deployed.
- 5) All vegetation erosion control must be established prior to the rainy season to be considered as an effective BMP.

3.3.7 Additional Controls for Construction Sites

For project sites that are tributary to 303(d) water body segments that are impaired for sediment, the following BMPs must be implemented at all times to the maximum extent possible:

- Maintain vegetative cover as much as possible by developing the project in a phased approach to reduce the amount of exposed soil at any one time.
- Limit the areas of active construction to five acres at any one time.
- Provide 100 percent soil cover for all areas of inactive construction throughout the entire time of construction, on a year-round basis.
- Provide appropriate perimeter control at all appropriate locations along the site perimeter and at all inlets to the storm drain system at all times during the rainy season.
- Provide vegetated buffer strips between the active construction area and any water bodies.
- Provide stabilized construction entrances and limit all vehicle and foot traffic to those entrances.

Where the provisions described above can not be accommodated, additional or supplemental controls shall be recommended. The City Engineer or designee shall have the authority to approve supplemental or alternative control methods based upon an evaluation of the proposed control and the sites potential threat to storm water quality impairment.

3.3.8 Maximum Disturbed Area for Erosion Control

The active disturbed soil area of any project site shall be not more than 50 acres for an individual grading permit or a combination of grading permits under an associated Tentative or Final Map. The City may approve, on a case-by-case basis, expansions of the active disturbed soil area limit if adequate site protection is demonstrated. At all times, sufficient soil stabilization and sediment control materials shall be maintained on site to provide adequate site protection.

3.3.9 Advanced Treatment Methods

Advanced Treatment is defined in the Municipal Permit as the use “of mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge.”

If a project meets all of the following criteria, advanced treatment will be required:

1. All or part of the site is within 200 feet of waters named on the CWA Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity;
2. The disturbance area is greater than five acres, including all phases of the development;
3. The disturbed slopes are steeper than 4:1 with at least 10 feet of relief, and drain toward a Section 303(d) listed receiving water for sedimentation or turbidity;
4. The site contains a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4.

Advanced treatment may be required on sites that do not meet all four of the criteria for exceptional threat to water quality listed above at the discretion of the City Engineer based on a record on non-compliance.

Treatment effluent water quality shall meet or exceed the water quality objectives for sediment, turbidity, pH, and toxicity as listed in the Water Quality Control Plan for the San Diego Basin (9) for inland surface waters and lagoons and estuaries for the appropriate hydrologic unit.

Prior to obtaining a grading permit, the applicant shall submit, to the satisfaction of the City Engineer, the following:

1. An operations and maintenance schedule for all advanced treatment methods.
2. A monitoring plan for all required BMPs and water quality for all proposed work deemed necessary to achieve project water quality goals.
3. A written training plan for certification and documentation of necessary training and refreshers of staff.

The discharger shall either deploy Advanced Treatment Methods or comply with source control procedures described below.

- Maintain vegetative cover as much as possible by developing the project in a phased approach to reduce the amount of exposed soil at any one time.

- Limit the areas of active construction to five acres at any one time.
- Provide 100 percent soil cover for all areas of inactive construction throughout the entire time of construction, on a year-round basis.
- Provide appropriate perimeter control at all appropriate locations along the site perimeter and at all inlets to the storm drain system at all times during the rainy season.
- Provide vegetated buffer strips between the active construction area and any water bodies.
- Provide stabilized construction entrances and limit all vehicle and foot traffic to those entrances.

3.3.10 City Standard Water Pollution Prevention Notes

All Tier 2 and Tier 3 Construction SWPPPs shall include the City Standard Storm Water Pollution Prevention notes as specified in Appendix I. The notes shall be placed upon the Construction SWPPP drawing or, in the case of a Tier 3 Construction SWPPP, on the grading plan. The Qualified Plan Preparer may include supplemental Storm Water Pollution Prevention notes to address specific requirements of the proposed project and/or construction site. The City Engineer or designee may also request inclusion of supplemental Storm Water Pollution Prevention notes to address specific construction activities or site issues.

3.4 Storm Water BMP Inspection and Maintenance

3.4.1 General information

Construction is a dynamic operation where changes are expected. Storm water BMPs for construction sites are usually temporary measures that require frequent maintenance to maintain their effectiveness and may require relocation, revision and re-installation, particularly as project grading progresses. Therefore, in addition to City inspections, owner/developer/contractor self-inspections are required.

3.4.2 Inspection of Construction Sites

All construction sites are subject to site inspection by City staff in accordance with the Carlsbad Municipal Code, the Municipal Permit, City's policies and procedures and these standards. Additionally, owner/developer/contractors are required to perform self-inspection of construction sites, for projects requiring a Tier 2 or Tier 3 Construction SWPPP, in accordance with these standards.

The City of Carlsbad will evaluate the adequacy of the owner's/contractor's site management for storm water pollution prevention, inclusive of BMP implementation, on construction sites based on performance standards for storm water BMPs. Poor BMP practices shall be challenged. Performance standards shall include:

1. Prevent increase in pollution to the maximum extent practicable.
2. Minimize slope erosion.
3. Control discharge velocities moving offsite to limit down stream erosion potential to the pre-construction levels.

3.4.3 City Storm Water BMP Inspection Frequency

Each construction site must be inspected by City staff for compliance with storm water standards at the minimum frequency as shown in Table 8. Site-specific inspection frequencies are reevaluated periodically, particularly when grading activities are being conducted during the rainy season. The need for additional inspections may vary depending upon several factors including:

- Site conditions;
- Previous violations;
- History of developer or contractor past performance;
- Grading during rainy season; and,
- Weather patterns.

Table 8		
	Inspection Frequency	
Site Threat to Water Quality	Rainy Season Oct 1st – April 30th	Dry Season May 1st – September 30th
High	Bi-weekly	As-needed
Medium	Monthly	As-needed
Low	As-needed	As-needed

The minimum inspection frequency is based upon a project's perceived Threat to Water Quality (TTWQ) and whether or not the construction occurs during the wet or dry season. Each project site is assigned one of three priorities to describe its TTWQ - low, medium or high. The worksheet entitled "Construction Threat Assessment Worksheet for Determination of Project's Perceived Threat to Water Quality", attached as Appendix A, is used to determine a construction site's TTWQ priority.

3.4.4 City Storm Water BMP Inspection Requirements

City inspection of construction sites for storm water compliance shall include, but not be limited to the following:

1. Assessment of BMP effectiveness including implementation of an effective combination of erosion, sediment and non-stormwater BMPs to meet the City's minimum water quality protection requirements and prevent the discharge of pollutants into storm water and receiving waters, and
2. Check for coverage under the General Construction Permit (Regional Board Notice of Intent (NOI) and/or Waste Discharge Identification No. (WDID No.)) during initial inspection;
3. Ensure compliance with the City's applicable ordinances, permits and other site-specific requirements;
4. Visual observations for non-stormwater discharges, potential illicit connections and potential discharge of pollutants in stormwater runoff;
5. Ensure proper implementation of plans and specifications,
6. Education and outreach on stormwater pollution prevention as needed;
7. Ensure that the project proponents implement their stormwater management on a year-round basis, and;
8. Creation of a written or electronic inspection report

City inspection staff will utilize the following framework when conducting an inspection:

1. Review the site erosion control and BMP implementation plans and determine whether they are being properly implemented;
2. Determine if BMPs are being used in accordance with the intent of all laws and approved plans;
3. Determine whether BMPs are effectively being implemented and maintained properly; and

4. Determine whether the owner/developer/contractor is making appropriate adjustments when ineffective BMPs are found.

For projects subject to the State General Construction Permit, the RWQCB is responsible for verifying and enforcing requirements of the General Construction Permit. The City inspection staff will continue to work with RWQCB staff in assuring compliance at these sites. City staff will document observations of potential violations and will notify the RWQCB of the noncompliance in accordance with Order R9-2007-0001 if the noncompliance poses a threat to human or environmental health.

Regardless of any inspections conducted by the City, property owners or contractors are required to prevent any construction-related materials, trash, wastes, spills or residues from entering a storm water conveyance system.

3.4.5 Qualified Person Required

All construction sites requiring a Tier 2 or Tier 3 Construction SWPPP are required to employ a Qualified Person to ensure proper installation and maintenance of the project BMPs. The Qualified Person shall:

1. Be trained and competent in the use of BMPs, shall be on site daily, although not necessarily full time, to evaluate the conditions of the site with respect to storm water pollution prevention. This qualified contact person shall represent the contractor/owner on storm water issues.
2. Shall implement the conditions of the Storm Water Pollution Prevention Plan, contract documents and/or local ordinances with respect to erosion and sediment control and other waste management regulations.
3. Be responsible for monitoring the weather and implementation of any emergency plans as needed. The weather shall be monitored on a 5-day forecast plan and a full BMP protection plan shall be activated when there is a 40% chance of rain.
4. Be responsible for overseeing any site grading and operations and evaluating the effectiveness of the BMPs. This person shall modify the BMPs as necessary to keep the dynamics of the site in compliance. This person or other qualified persons are responsible for checking the BMPs routinely for maintenance and documenting the BMPs being implemented.

This page intentionally left blank

Appendix A

Project Threat Assessment Worksheet for Determination of Construction SWPPP Tier Level



Project Threat Assessment Worksheet for Determination of Construction SWPPP Tier Level

Project Storm Water Threat Assessment Criteria*	Construction SWPPP Tier Level
<p><u>Significant Threat Assessment Criteria</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> My project includes clearing, grading or other disturbances to the ground resulting in soil disturbance totaling one or more acres including any associated construction staging, equipment storage, stockpiling, pavement removal, refueling and maintenance areas; or, <input type="checkbox"/> My project is part of a phased development plan that will cumulatively result in soil disturbance totaling one or more acres including any associated construction staging, equipment storage, refueling and maintenance areas; or, <input type="checkbox"/> My project is located inside or within 200 feet of an environmentally sensitive area (see City ESA Proximity map) and has a significant potential for contributing pollutants to nearby receiving waters by way of storm water runoff or non-storm water discharge(s). 	Tier 3
<p><u>Moderate Threat Assessment Criteria</u></p> <p>My project does not meet any of the Significant Threat Assessment Criteria described above and meets one or more of the following criteria:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Project requires a grading plan pursuant to the Carlsbad Grading Ordinance (Chapter 15.16 of the Carlsbad Municipal Code); or, <input type="checkbox"/> Project will result in 2,500 square feet or more of soils disturbance including any associated construction staging, stockpiling, pavement removal, equipment storage, refueling and maintenance areas and project meets one or more of the additional following criteria: <ul style="list-style-type: none"> • located within 200 feet of an environmentally sensitive area or the Pacific Ocean; and/or, • disturbed area is located on a slope with a grade at or exceeding 5 horizontal to 1 vertical; and/or • disturbed area is located along or within 30 feet of a storm drain inlet, an open drainage channel or watercourse; and/or • construction will be initiated during the rainy season or will extend into the rainy season (Oct. 1 through April 30). 	Tier 2
<p><u>Low Threat Assessment Criteria</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> My project does not meet any of the Significant or Moderate Threat criteria, is not an exempt permit type (see City's list of Permit Types Exempt from Construction SWPPP requirements) and the project meets one or more of the following criteria: <ul style="list-style-type: none"> • results in some soil disturbance; and/or • includes outdoor construction activities (such as roofing, saw cutting, equipment washing, material stockpiling, vehicle fueling, waste stockpiling) 	Tier 1
<p><u>No Threat Project Assessment Criteria</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> My project is in a category of permit types exempt from City Construction SWPPP requirements (see City's list of Permit Types Exempt from Construction SWPPP requirements) and/or does not meet any of the High, Moderate or Low Threat criteria described above. 	Exempt

* The City Engineer may authorize minor variances from the Storm Water Threat Assessment Criteria in special circumstances where it can be shown that a lesser or higher Construction SWPPP Tier Level is warranted in the opinion of the City Engineer

Appendix B

Storm Water Compliance Forms



Storm Water Compliance Form For a Tier 3 Construction SWPPP

I am applying to the City of Carlsbad for the following type of construction permit(s):

☐ Grading Permit ☐ Building Permit ☐ Right-of-Way Permit

My project requires preparation and approval of a Tier 3 Construction Storm Water Pollution Prevention Plan (SWPPP) because my project meets one or more of the following criteria demonstrating that the project potentially poses a significant threat to storm water quality:

- ☐ My project includes clearing, grading or other disturbances to the ground resulting in soil disturbance totaling one or more acres including any associated construction staging, equipment storage, stockpiling, pavement removal, refueling and maintenance areas; or,
- ☐ My project is part of a phased development plan that will cumulatively result in soil disturbance totaling one or more acres including any associated construction staging, equipment storage, stockpiling, pavement removal, refueling and maintenance areas; or,
- ☐ My project is located inside or within 200 feet of an environmentally sensitive area and has a significant potential for contributing pollutants to nearby receiving waters by way of storm water runoff or non-storm water discharge(s).

I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE ABOVE CHECKED STATEMENTS ARE TRUE AND CORRECT.

I AM SUBMITTING FOR CITY APPROVAL A TIER 3 CONSTRUCTION SWPPP PREPARED IN ACCORDANCE WITH CITY STANDARDS AND THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES - WATER QUALITY ORDER NO 99-08-DWQ (GENERAL CONSTRUCTION PERMIT) AND ANY AMENDMENT, REVISION OR RE-ISSUANCE THEREOF.

I UNDERSTAND AND ACKNOWLEDGE THAT I MUST SUBMIT THE CITY APPROVED TIER 3 CONSTRUCTION SWPPP TO THE SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD TOGETHER WITH A NOTICE OF INTENTION (NOI), AN APPROPRIATE FILING FEE AND OTHER REQUIRED DOCUMENTATION AND RECEIVE A STATE WASTE DISCHARGER'S IDENTIFICATION (WDID) NUMBER PRIOR TO CITY ISSUANCE OF THE ABOVE REQUESTED CONSTRUCTION PERMIT(S).

I ALSO UNDERSTAND AND ACKNOWLEDGE THAT I MUST ADHERE TO, AND AT ALL TIMES, COMPLY WITH THE CITY APPROVED TIER 3 CONSTRUCTION SWPPP THROUGHOUT THE DURATION OF THE CONSTRUCTION ACTIVITIES UNTIL THE CONSTRUCTION WORK IS COMPLETE AND APPROVED BY THE CITY OF CARLSBAD.

Owner/Owner's Authorized Agent Information and Signature Box

This Box for City Use Only

Address/Location:		Assessor Parcel Number(s):	
Owner/Owner's Authorized Agent Name:		Title:	
Owner/Owner's Authorized Agent Signature:		Date:	

City Concurrence:	Yes	No
By:		
Date:		
Project ID:		



Storm Water Compliance Form For a Tier 2 Construction SWPPP

I am applying to the City of Carlsbad for one or more the following type of construction permit(s):

- ☐ Grading Permit ☐ Building Permit ☐ Right-of-Way Permit

My project does not meet any of the following criteria for a project that poses a significant threat to storm water quality:

- ✓ My project does not include clearing, grading or other ground disturbances resulting in soil disturbance totaling one or more acres including any associated construction staging, equipment storage, stockpiling, pavement removal, refueling and maintenance areas; and,
- ✓ My project is not part of a phased development plan that will cumulatively result in soil disturbance totaling one or more acres including any associated construction staging, equipment storage, stockpiling, pavement removal, refueling and maintenance areas; and,
- ✓ My project is not located inside or within 200 feet of an environmentally sensitive area and will not have a significant potential for contributing pollutants to nearby receiving waters by way of storm water runoff or non-storm water discharge(s).

My project requires preparation and approval of a Tier 2 Construction Storm Water Pollution Prevention Plan (SWPPP) because my project meets one or more of the following criteria demonstrating that the project potentially poses a moderate threat to storm water quality:

- ☐ My project requires a grading plan pursuant to the Carlsbad Grading Ordinance (Chapter 15.16 of the Carlsbad Municipal Code); and/or,
- ☐ My Project will result in 2,500 square feet or more of soils disturbance including any associated construction staging, stockpiling, pavement removal, equipment storage, refueling and maintenance areas and, my project meets one or more of the following additional criteria:
 - Project is located within 200 feet of an environmentally sensitive area or the Pacific Ocean;
 - Project's disturbed area is located on a slope with a grade at or exceeding 5 horizontal to 1 vertical;
 - Project's disturbed area is located along or within 30 feet of a storm drain inlet, an open drainage channel or watercourse; and/or
 - Project will be initiated during the rainy season or will extend into the rainy season (Oct. 1 through April 30).

I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE ABOVE CHECKED STATEMENTS ARE TRUE AND CORRECT. I AM SUBMITTING FOR CITY APPROVAL A TIER 2 CONSTRUCTION SWPPP PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF CITY STANDARDS.

I UNDERSTAND AND ACKNOWLEDGE THAT I MUST ADHERE TO, AND AT ALL TIMES, COMPLY WITH THE CITY APPROVED TIER 2 CONSTRUCTION SWPPP THROUGHTOUT THE DURATION OF THE CONSTRUCTION ACTIVITIES UNTIL THE CONSTRUCTION WORK IS COMPLETE AND APPROVED BY THE CITY OF CARLSBAD.

Owner/Owner's Authorized Agent Information and Signature Box

This Box for City Use Only

Address/Location:		Assessor Parcel Number(s):	
Owner/Owner's Authorized Agent Name:		Title:	
Owner/Owner's Authorized Agent Signature:		Date:	

City Concurrence:	Yes	No
By:		
Date:		
Project ID:		



Storm Water Compliance Exemption Form

I am applying to the City of Carlsbad for the following type(s) of construction permit:

☐ Building Permit ☐ Right-of-Way Permit

- ☐ My project is categorically exempt from the requirement to prepare a storm water pollution prevention plan (SWPPP) because it only requires issuance of one or more of the following permit types:

Electrical Permit Fire Additional Permit Fire Alarm Permit Fixed Systems Permit Mechanical Permit Mobile Home Permit Re-Roofing Permit	Patio Deck Plumbing Permit Sign Permit Spa – Factory Made Sprinkler Permit Water Discharge Permit
--	--

- ☐ My project is exempt from the requirement to prepare a storm water pollution prevention plan (SWPPP) because it meets the “no threat” assessment criteria on the City’s Project Threat Assessment Worksheet for Determination of Construction SWPPP Tier Level.

I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE ABOVE CHECKED STATEMENTS ARE TRUE AND CORRECT.

I UNDERSTAND AND ACKNOWLEDGE THAT EVEN THOUGH THIS PROJECT DOES NOT REQUIRE PREPARATION OF A CONSTRUCTION SWPPP, I MUST STILL ADHERE TO, AND AT ALL TIMES DURING CONSTRUCTION ACTIVITIES FOR THE PERMIT TYPE(S) CHECKED ABOVE, COMPLY WITH THE STORM WATER BEST MANAGEMENT PRACTICES PURSUANT TO TITLE 15 OF THE CARLSBAD MUNICIPAL CODE AND TO CITY STANDARDS.

Owner/Owner's Authorized Agent Information and Signature Box

Address/Location: Number(s):		Assessor Parcel	
Owner/Owner's Authorized Agent Name:		Title:	
Owner/Owner's Authorized Agent Signature:		Date:	

This Box for City Use Only

City Concurrence:	Yes	No
By:		
Date:		
Project ID:		

Appendix C

Construction Threat Assessment Worksheet for Determination of Threat to Storm Water Quality



Construction Threat Assessment Worksheet for Determination of a Project's Perceived Threat to Storm Water Quality

Construction SWPPP Tier Level	Construction Threat Assessment Criteria*	Perceived Threat to Storm Water Quality
Tier 3	<u>Tier 3 – High Construction Threat Assessment Criteria</u> <input type="checkbox"/> Project site is 50 acres or more and grading will occur during the rainy season <input type="checkbox"/> Project site is 1 acre or more in size and is located within the Buena Vista or Agua Hedionda Lagoon watershed, inside or within 200 feet of an environmentally sensitive area (ESA) or discharges directly to an ESA <input type="checkbox"/> Soil at site is moderately to highly erosive (defined as having a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4) <input type="checkbox"/> Site slope is 5 to 1 or steeper <input type="checkbox"/> Construction is initiated during the rainy season or will extend into the rainy season (Oct. 1 through April 30). <input type="checkbox"/> Owner/contractor received a Storm Water Notice of Violation within past two years	High
	<u>Tier 3 – Medium Construction Threat Assessment Criteria</u> <input type="checkbox"/> All projects not meeting Tier 3 High Construction Threat Assessment Criteria	Medium
Tier 2	<u>Tier 2 High Construction Threat Assessment Criteria</u> <input type="checkbox"/> Project is located within the Buena Vista or Agua Hedionda Lagoon watershed, inside or within 200 feet of an environmentally sensitive area (ESA) or discharges directly to an ESA <input type="checkbox"/> Soil at site is moderately to highly erosive (defined as having a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4) <input type="checkbox"/> Site slope is 5 to 1 or steeper <input type="checkbox"/> Construction is initiated during the rainy season or will extend into the rainy season (Oct. 1 through April 30). <input type="checkbox"/> Owner/contractor received a Storm Water Notice of Violation within past two years <input type="checkbox"/> Site results in one half acre or more of soil disturbance	High
	<u>Tier 2 – Medium Construction Threat Assessment Criteria</u> <input type="checkbox"/> All projects not meeting Tier 2 High Construction Threat Assessment Criteria	Medium
Tier 1	<u>Tier 1 - Medium Inspection Threat Assessment Criteria</u> <input type="checkbox"/> Project is located within the Buena Vista or Agua Hedionda Lagoon watershed, within or directly adjacent to an environmentally sensitive area (ESA) or discharges directly to an ESA <input type="checkbox"/> Soil at site is moderately to highly erosive (defined as having a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4) <input type="checkbox"/> Site slope is 5 to 1 or steeper <input type="checkbox"/> Construction is initiated during the rainy season or will extend into the rainy season (Oct. 1 through April 30). <input type="checkbox"/> Owner/contractor received a Storm Water Notice of Violation within past two years <input type="checkbox"/> Site results in one half acre or more of soil disturbance	Medium
	<u>Tier 1 - Low Inspection Threat Assessment Criteria</u> <input type="checkbox"/> All projects not meeting Tier 1 Medium Construction Threat Assessment Criteria	Low
Exempt	- Not Applicable -	Exempt

* The City Engineer may authorize minor variances from the Construction Threat Assessment Criteria in special circumstances where it can be shown that a lesser or higher amount of storm water compliance inspection is warranted in the opinion of the City Engineer

Appendix D

Tier 3 Construction SWPPP Required Elements Checklist



TIER 3 CONSTRUCTION SWPPP REQUIRED ELEMENTS CHECKLIST

Project Name _____ Project ID _____ SWPPP Preparer _____ Date _____

Construction SWPPP Required Element	Reference Document and Section (1)	Page Number (2)	Not Applicable N/A	Implementation Date (3)
GCP Section A. Storm Water Pollution Prevention Plan (SWPPP)				
<i>Vicinity Map (graphic)</i>	<i>GCP A.5.a.1</i>			
Major roadways, geographic features or landmarks	<i>GCP A.5.a.1</i>			
Site perimeter	<i>GCP A.5.a.1</i>			
Geographic features	<i>GCP A.5.a.1</i>			
General topography	<i>GCP A.5.a.1</i>			
<i>Site Map (graphic)(can modify Parcel Map)</i>	<i>GCP A.5.a.2</i>			
Site perimeter	<i>GCP A.5.a.2</i>			
Existing and proposed buildings, lots, and roadways	<i>GCP A.5.a.2</i>			
Storm water collection and discharge points	<i>GCP A.5.a.2</i>			
General topography before and after construction	<i>GCP A.5.a.2</i>			
Anticipated discharge location(s)	<i>GCP A.5.a.2</i>			
Drainage patterns	<i>GCP A.5.a.2</i>			
Relevant drainage areas 2	<i>GCP A.5.a.</i>			
Temporary on-site drainage	<i>GCP A.5.a.2</i>			
<i>Drainage (graphic)</i>	<i>GCP A.5.b.1</i>			
Drainage patterns	<i>GCP A.5.b.1</i>			
Slopes after major grading	<i>GCP A.5.b.1</i>			
Calculations for storm water run-on	<i>GCP A.5.b.1</i>			
BMPs that divert off-site drainage from going through site	<i>GCP A.5.b.1</i>			
<i>Storm Water Inlets (graphic)</i>	<i>GCP A.5.b.2</i>			
Drainage patterns to storm water inlets or receiving water	<i>GCP A.5.b.2</i>			
BMPs that protect storm water inlets or receiving water	<i>GCP A.5.b.2</i>			
<i>Site History/Past Site Usage (Real Estate Broker Disclosure may be sufficient)</i>	<i>GCP A.5.b.3</i>			
Description of toxic materials treated, stored, or spilled on site	<i>GCP A.5.b.3</i>			
BMPs that minimize contact of contaminants with storm water	<i>GCP A.5.b.3</i>			
<i>Location of Areas Designated for: (graphic)</i>	<i>GCP A.5.b.4</i>			

(1) Reference Document Legend: GCP = General Construction Permit; MP = Municipal Permit; CSWSM = City Storm Water Standards Manual

(2) Indicate the page number where the information is located in your SWPPP. If the information is not applicable to your site, construction activities, or construction materials, check the N/A box. Your SWPPP does not have to address items which are not applicable to your situation.

(3) Date that the BMP will be installed on the site

Construction SWPPP Required Element	Reference Document and Section (1)	Page Number (2)	Not Applicable N/A	Implementation Date (3)
Soil or waste storage	<i>GCP A.5.b.4</i>			
Vehicle storage & service	<i>GCP A.5.b.4</i>			
Construction material loading, unloading, and access	<i>GCP A.5.b.4</i>			
Equipment storage, cleaning, maintenance	<i>GCP A.5.b.4</i>			
<i>BMP Descriptions for: (graphic or narrative)</i>	<i>GCP A.5.b.5</i>			
Waste handling and disposal areas	<i>GCP A.5.b.5</i>			
On-site storage and disposal of construction materials and waste	<i>GCP A.5.b.5</i>			
BMPs to minimize exposure of storm water to construction materials, equipment, vehicles, waste	<i>GCP A.5.b.5</i>			
<i>Post Construction BMPs</i>	<i>GCP A.5.b.6</i> <i>See A. 10</i>			
<i>Additional Information</i>	<i>GCP A.5. c</i>			
Description of other pollutant sources and BMPs that cannot be shown graphically	<i>GCP A.5.c.1</i>			
Pre-construction control practices	<i>GCP A.5.c.1</i>			
Inventory of materials and activities that may pollute storm water	<i>GCP A.5.c.2</i>			
BMPs to reduce/eliminate potential pollutants listed in the inventory	<i>GCP A.5.c.2</i>			
Runoff coefficient (before & after)	<i>GCP A.5.c.3</i>			
Percent impervious (before & after)	<i>GCP A.5.c.3</i>			
Copy of the NOI and WDID #	<i>GCP A.5.c.4</i>			
Construction activity schedule	<i>GCP A.5.c.5</i>			
Contact information	<i>GCP A.5.c.6</i>			
EROSION CONTROL	<i>GCP A.6</i>			
<i>The SWPPP shall include: (graphic)</i>	<i>GCP A.6.a-c</i>			
Areas of vegetation on site	<i>GCP A.6.a.1</i>			
Areas of soil disturbance that will be stabilized during rainy season	<i>GCP A.6.a.2</i>			
Areas of soil disturbance which will be exposed during any part of the rainy season	<i>GCP A.6.a.3</i>			
Construction phase / BMP sequencing schedule including supplemental pre-rain action plan for erosion control measures	<i>GCP A.6.a.4</i>			
BMPs for erosion control	<i>GCP A.6.b</i>			

(1) Reference Document Legend: GCP = General Construction Permit; MP = Municipal Permit; CSWSM = City Storm Water Standards Manual

(2) Indicate the page number where the information is located in your SWPPP. If the information is not applicable to your site, construction activities, or construction materials, check the N/A box. Your SWPPP does not have to address items which are not applicable to your situation.

(3) Date that the BMP will be installed on the site

Construction SWPPP Required Element	Reference Document and Section (1)	Page Number (2)	Not Applicable N/A	Implementation Date (3)
BMPs to control wind erosion	GCP A.6.c			
SEDIMENT CONTROL	GCP A.8			
Description/Illustration of BMPs to prevent increase of sediment load in discharge	GCP A.8			
Construction phase / BMP sequencing schedule including supplemental pre-rain action plan for sediment control measures	GCP A.8			
NON-STORM WATER	GCP A.9			
Description of non-storm water discharges to receiving waters	GCP A.9			
Locations of discharges	GCP A.9			
Description of BMPs	GCP A.9			
Name and phone number of qualified person responsible for non-storm water management	GCP A.9			
POST-CONSTRUCTION	GCP A.10			
Description and location of BMPs	GCP A.10			
Operation/Maintenance of BMPs after project completion (including funding)	GCP A.10			
MAINTENANCE, INSPECTIONS, AND REPAIR	GCP A.11			
Name and phone number of qualified person responsible for inspections	GCP A.11			
Inspection checklist: date, weather, inadequate BMPs, visual observations of BMPs, corrective action, inspector's name, title, signature	GCP A.11.a-f			
OTHER REQUIREMENTS	GCP A.12-16			
Documentation of all training	GCP A.12			
List of Contractors/Subcontractors	GCP A.13			
GCP Section B. Monitoring and Reporting Requirements				
Description of site inspection plans	GCP B.3			
Compliance certification (annually 7/1) if project is under active construction	GCP B.4			
Noncompliance reporting	GCP B.5			
Records of all inspections; compliance certifications; noncompliance reports, etc.	GCP B.6			

(1) Reference Document Legend: GCP = General Construction Permit; MP = Municipal Permit; CSWSM = City Storm Water Standards Manual

(2) Indicate the page number where the information is located in your SWPPP. If the information is not applicable to your site, construction activities, or construction materials, check the N/A box. Your SWPPP does not have to address items which are not applicable to your situation.

(3) Date that the BMP will be installed on the site

Construction SWPPP Required Element	Reference Document and Section (1)	Page Number (2)	Not Applicable N/A	Implementation Date (3)
Monitoring program for sediment contribution from direct discharges to impaired water bodies	GCP B.7			
Monitoring program for pollutants not visually detectable in storm water (nonvisible pollutants)	GCP B.8			
GCP Section C. Standard Provisions for Construction Activities				
Signed Certification for SWPPP, reports, amendments, etc. Who is authorized to sign and by what authority has the duly authorized representative been assigned?	GCP C.9,10			
Location of General Permit and SWPPP on site during construction activities	GCP C. 17			
MP Section D.2 Construction Component				
GENERAL SITE MANAGEMENT	MP D.2.c.(1)(a)			
Pollution prevention, where appropriate	MP D.2.c.(1)(a)i. and CSWSM 3.3.2			
Development and implementation of a storm water site management plan	MP D.2.c.(1)(a)ii. and CSWSM 3.3.6			
Minimization of areas that are cleared and graded to only the portion of the site that is necessary for construction	MP D.2.c.(1)(a)iii. and CSWSM 3.3.6.1			
Minimization of exposure time of disturbed soil areas	MP D.2.c (1)(a)iv. and CSWSM 3.3.6.1			
Minimization of grading during the wet season and correlation of grading with seasonal dry weather periods to the extent feasible	MP D.2.c.(1)(a)v. and CSWSM 3.3.6.1			
Limitation of grading to a maximum disturbed area of 50 acres	MP D.2.c.(1)(a)vi. and CSWSM 3.3.8			
Temporary stabilization and reseeded of disturbed soil areas as rapidly as feasible	MP D.2.c.(1)(a)vii. and CSWSM 3.3.6.1			
Preservation of natural hydrologic features where feasible;	MP D.2.c. (1)(a)viii. and CSWSM 3.3.6			
Preservation of riparian buffers and corridors where feasible	MP D.2.c.(1)(a)ix. and CSWSM 3.3.6			
Maintenance of all BMPs, until removed	MP D.2.c.(1)(a)x. and CSWSM 3.3.6			
Retention, reduction, and proper management of all pollutant discharges on site to	MP D.2.c.(1)(a)xi. and			

(1) Reference Document Legend: GCP = General Construction Permit; MP = Municipal Permit; CSWSM = City Storm Water Standards Manual

(2) Indicate the page number where the information is located in your SWPPP. If the information is not applicable to your site, construction activities, or construction materials, check the N/A box. Your SWPPP does not have to address items which are not applicable to your situation.

(3) Date that the BMP will be installed on the site

Construction SWPPP Required Element	Reference Document and Section (1)	Page Number (2)	Not Applicable N/A	Implementation Date (3)
the MEP standard	CSWSM 3.3.6			
EROSION AND SEDIMENT CONTROLS	MP D.2.c.(1)(b) and CSWSM 3.3.3			
Erosion prevention, to be used as the most important measure for keeping sediment on site during construction, but never as the single method	MP D.2.c.(1)(b)i. and CSWSM 3.3.3			
Sediment controls, to be used as a supplement to erosion prevention for keeping sediment on-site during construction	MP D.2.c.(1)(b)ii. and CSWSM 3.3.3			
Slope stabilization on all inactive slopes during the rainy season and during rain events in the dry season	MP D.2.c (1)(b)iii. and CSWSM 3.3.6.1&2			
Slope stabilization on all active slopes during rain events regardless of the season	MP D.2.c (1)(b)iv. and CSWSM 3.3.6.1			
Permanent re-vegetation or landscaping as early as feasible.	MP D.2.c.(1)(b)v. and CSWSM 3.3.6			
ADVANCED TREATMENT CONTROLS Addition of advanced treatment controls for projects that are determined to be an exceptional threat to water quality	MP D.2.c.(2) and CSWSM 3.3.9			
Operations and Maintenance Schedule	CSWSM 3.3.9			
Advanced treatment Monitoring Plan	CSWSM 3.3.9			
Advanced Treatment Training Plan	CSWSM 3.3.9			
Alternative Source Control Procedures in Lieu of Advanced Treatment Control Noted on Plans	CSWSM 3.3.9			
YEAR ROUND BMP IMPLEMENTATION	MP D.2.c.(3) and CSWSM 3.3.6			
Plan for year round implementation of minimum BMPs that can vary based upon wet and dry seasons	MP D.2.c.(3) and CSWSM 3.3.6			
ADDITIONAL CONTROLS FOR SITES TRIBUTARY TO CWA SECTION 303(d) IMPAIRED WATERS	MP D.2.c.(4) and CSWSM 3.3.7			
Maintain vegetative cover as much as possible by developing the project in a phased approach to reduce the amount of exposed soil at any one time.	CSWSM 3.3.7			
Limit the areas of active construction to five acres at any one time.	CSWSM 3.3.7			

(1) Reference Document Legend: GCP = General Construction Permit; MP = Municipal Permit; CSWSM = City Storm Water Standards Manual

(2) Indicate the page number where the information is located in your SWPPP. If the information is not applicable to your site, construction activities, or construction materials, check the N/A box. Your SWPPP does not have to address items which are not applicable to your situation.

(3) Date that the BMP will be installed on the site

Construction SWPPP Required Element	Reference Document and Section (1)	Page Number (2)	Not Applicable N/A	Implementation Date (3)
Provide 100 percent soil cover for all areas of inactive construction throughout the entire time of construction, on a year-round basis.	CSWSM 3.3.7			
Provide appropriate perimeter control at all appropriate locations along the site perimeter and at all inlets to the storm drain system at all times during the rainy season	CSWSM 3.3.7			
Provide vegetated buffer strips between the active construction area and any water bodies.	CSWSM 3.3.7			
Provide stabilized construction entrances and limit all vehicle and foot traffic to those entrances.	CSWSM 3.3.7			
INSPECTION OF CONSTRUCTION SITE	MP D.2.d and CSWSM 3.4.3			
Inspection priority determined for site and frequency noted in SWPPP	MP D.2.d and CSWSM 3.4.3			
STANDARD STORM WATER POLLUTION PREVENTION NOTES	CSWSM 3.3.10			
Standard Storm Water Pollution Prevention Notes included on Grading Plans	CSWSM 3.3.10			

(1) Reference Document Legend: GCP = General Construction Permit; MP = Municipal Permit; CSWSM = City Storm Water Standards Manual

(2) Indicate the page number where the information is located in your SWPPP. If the information is not applicable to your site, construction activities, or construction materials, check the N/A box. Your SWPPP does not have to address items which are not applicable to your situation.

(3) Date that the BMP will be installed on the site

This page intentionally left blank

Appendix E

TIER 3 Construction SWPPP Checklist (CASQA Format)



TIER 3 CONSTRUCTION SWPPP CASQA FORMAT CHECKLIST

Project Name _____

Planchecker _____

Project ID _____

Date _____

CASQA Section Number and Potential Required Elements	Required for Project	Planchecker Verification
General Formatting		
Tabbed separators included between Sections		
Section - 100 SWPPP Certifications and Approval		
100.1 - SWPPP Certification by Preparer		
Project name, grading permit, building permit, discretionary permit number(s), APN at top of form		
Certification signed and dated by person responsible for preparation of the SWPPP		
Name, title and telephone number of the person signing the form		
SWPPP and Monitoring Program Checklist in Attachment L completed		
Notice of Intent (NOI) attached, completed and signed by Owner or Owner's agent		
100.2 - Owner Approval and Certification of SWPPP		
Project name, grading permit, building permit, discretionary permit number(s), APN at top of form		
Certification signed and dated by owners staff; specifically, the person responsible for preparation of the SWPPP and/or the person responsible for overall management of the site		
Name, title and telephone number of the person signing the form		
100.3 - Annual Compliance Certification		
Blank copy of the Annual Compliance of Compliance included as Attachment M		
Section 200 – SWPPP Amendments		
200.1 - SWPPP Amendment Certification and Approval		
Instructions and Blank Amendment Certification and Approval forms included		
200.2 - Amendment Log		
Instructions and Blank Amendment Log included		
Section 300 - Introduction and Project Description		
300.1 – Introduction and Project Description		
Projects legal description including County, City and address, proximity to receiving waters to which project will discharge including surface waters, drainage channels, and drainage systems; ownership of all drainage systems to which the project discharges		
300.2 – Unique Site Features		
Description of unique site features (water bodies, wetlands, environmentally sensitive areas, endangered or protected species, etc) and significant or high risk construction activities that may impact storm water quality. Include any		

unique features or activities within or adjacent to water bodies		
300.3 - Construction Site Estimates		
Construction site area in acres		
Runoff coefficient and percentage impervious area before and after construction		
Calculations for Coefficient change included in Attachment D		
Anticipated storm water run-on to the construction site		
Calculations for storm water run-on included in Attachment E		
300.4 - Project Schedule/Water Pollution Control Schedule		
Written and geographical project schedule including:		
Project start and finish dates		
Rainy season dates		
Annual certifications		
Mobilization dates		
Mass clearing and grubbing/roadside clearing dates		
Major grading/excavation dates		
Special dates named in other permits such as Fish and Game and Army Corps of Engineers Permits		
Dates for submittal of SWPPP Amendments required by the contract documents		
Annual submittal of rainy season implementation schedule if required by the Owner or Permittee		
Dates for implementation of pre-rainy season temporary soil stabilization and temporary sediment control BMPs, if required		
Rainy season implementation schedule including:		
Deployment of temporary soil stabilization BMPs		
Deployment of temporary sediment control BMPs		
Deployment of wind erosion control Bmps		
Deployment of tracking control BMPs		
Deployment of non-storm water BMPs		
Deployment of waste management and materials pollution control BMPs		
Non-rainy season implementation schedule		
Deployment of temporary soil stabilization BMPs		
Deployment of temporary sediment control BMPs		
Deployment of wind erosion control Bmps		
Deployment of tracking control BMPs		
Deployment of non-storm water BMPs		
Deployment of waste management and materials pollution control BMPs		
Paving, saw-cutting and any other pavement related operations		
Major planned stockpiling operations		

Dates for other significant long-term operations or activities that may plan non-storm water discharges such as dewatering, grinding, etc		
Final stabilization activities staged over time for each area of the project		
300.5 - Contact Information/List of Responsible Parties		
Name and telephone number(s) of the Contractor's Storm Water Pollution Prevention Manager (SWPPM) and required text		
Section 400 - References		
List of documents referenced in the SWPPP		
All Federal, State and City permits		
On-site project information including plans and specifications, geotechnical report(s), hydrology/hydraulic report(s), and other reports and regulatory guidance documents		
Each referenced document includes title, number (if applicable), author, date published and revision date		
Section 500 – Body of SWPPP		
500.1 - Objectives		
Required text included		
500.2 – Vicinity Map		
8 ½' x 11" color copy of USGS map or equal included as Attachment A displaying site perimeter, major roadways, geographic features and landmarks, adjacent water bodies, known wells, an outline of the off-site drainage area, anticipated discharge locations and general topography		
Brief narrative description of the vicinity map		
500.3 – Pollutant Source Identification and BMP Selection		
Required text included for each subsection		
500.3.1 – Inventory of Materials and Activities that May Pollute Storm Water		
List of all construction materials that have the potential to contribute to the discharge of pollutants to storm water and required text		
List of all construction activities that have the potential to contribute sediment to storm water discharges		
500.3.2 – Existing Pre-construction Control Measures		
List of any existing BMPs in place prior to construction used to reduce erosion, sediment or other pollutants in storm water discharges		
500.3.3 Nature of Fill Material and Existing Data Describing the Soil		
Description of the conditions of the fill materials and soils at the construction site including soil types, groundwater location and condition, dewatering operations, presence of existing toxic materials and contaminants and other relevant information		
500.3.4 Erosion Control (EC) (Soil Stabilization)		
Attachment C included. BMP Consideration Checklist filled out. Appropriate EC BMPs selected		
Introductory paragraphs the define EC and give general approach on how temporary EC BMPs will be implemented		

List all temporary EC BMPs to be used on the project		
Show temporary EC BMPs on the Water Pollution Control Drawings (WPCDs)		
Provide narrative description of temporary EC BMPs that cannot be adequately identified on the WPCDs		
Discussion of on-site availability of temporary EC materials and proposed mobilization and implementation of temporary EC BMPs in event of predicted rain. Explanation of how and when BMPs will be implemented when rain is forecasted		
Additional City Required Erosion Control Requirements		
Erosion prevention, to be used as the most important measure for keeping sediment on site during construction, but never as the single method		
Sediment controls, to be used as a supplement to erosion prevention for keeping sediment on-site during construction		
Slope stabilization on all inactive slopes during the rainy season and during rain events in the dry season		
Slope stabilization on all active slopes during rain events regardless of the season		
Permanent revegetation or landscaping as early as feasible.		
500.3.5 – Sediment Control (SC)		
Attachment C included. BMP Consideration Checklist filled out. Appropriate SC BMPs selected		
List all temporary SC BMPs to be used on the project		
Show temporary SC BMPs on the Water Pollution Control Drawings (WPCDs)		
Provide narrative description of temporary SC BMPs that cannot be adequately identified on the WPCDs		
BMPs used to divert off-site drainage around and/or through the construction site shown on WPCDs		
Discussion of on-site availability of temporary EC materials and proposed mobilization and implementation of temporary EC BMPs in event of predicted rain		
500.3.6 Tracking Control (TC)		
Attachment C included. BMP Consideration Checklist filled out. Appropriate TC BMPs selected		
List all temporary TC BMPs to be used on the project		
Show all ingress/egress points to project site on WPCDs and show or describe TC BMPs		
Provide narrative description of temporary TC BMPs that cannot be adequately identified on the WPCDs		
Discussion of road cleaning BMPs		
500.3.7 Wind Erosion Control (WEC)		
Attachment C included. BMP Consideration Checklist filled out. Appropriate WEC BMPs selected		
Narrative description of WEC BMPs to be used on project		
500.3.8 – Non-Storm Water Control (NSWC)		
All potential non-storm water discharges listed		
Attachment C included. BMP Consideration Checklist filled out. Appropriate NSWC BMPs selected		
Discuss how mobile operations, such as equipment maintenance and fueling, will be addressed		
Describe each planned NSW discharge from project including flow/quantity. If flow/quantity cannot be determined,		

then describe nature and extent of activity so quantity can be inferred		
Show NSWC BMPs on WPCDs and/or provide narrative description including path of discharge to storm inlet, drainage facilities or receiving waters		
Describe time period and frequency of each NSW activity that generates or may generate a discharge		
Describe mandatory NSWC BMPs and practices required by City , State or Federal agencies and provide details and schedules as appropriate. Include maintenance, inspection, testing and reporting procedures, if applicable. Include permit info for discharges covered by separate NPDES permit		
Describe selected NSWC BMPs and practices to minimize, contain and dispose of prohibited discharges. Include maintenance, inspection, testing and reporting procedures, if applicable		
Describe sediment controls for landscape irrigation run-off prior to establishment of vegetation		
Indicate how illicit connections and illegal discharges will be handled.		
Develop new owner notification pamphlet to make new owner aware of potential for unauthorized discharges and practices, if needed		
500.3.9 – Waste Management and Material Pollution Control (WMMPC)		
All potential WMMP activities listed		
Attachment C included. BMP Consideration Checklist filled out. Appropriate WMMPC BMPs selected		
Substitute safer, less polluting products where possible		
List selected WMMPC BMPs and describe proposed facilities for materials storage and waste management. Include schedules, inspection and maintenance requirements. Show on WPCDs as appropriate		
Describe proposed waste collection and removal schedule		
500.3.10 – Cost Breakdown for Water Pollution Control		
Water pollution control cost estimate sheet included		
Additional City Requirements		
Advanced Treatment Controls (If required. See Storm Water Standards Manual Section 3.3.9)		
Operations and Maintenance Schedule		
Advanced treatment Monitoring Plan		
Advanced Treatment Training Plan		
Alternative Source Control Procedures in Lieu of Advanced Treatment Control Noted on Plans		
Year Round BMP Implementation		
Plan for year round implementation of minimum BMPs that can vary based upon wet and dry seasons		
Additional Controls for Sites tributary to CWA Section 303(d) Impaired Waters RS		
Maintain vegetative cover as much as possible by developing the project in a phased approach to reduce the amount of exposed soil at any one time.		
Limit the areas of active construction to five acres at any one time.		
Provide 100 percent soil cover for all areas of inactive construction throughout the entire time of construction, on a year-round basis.		

Provide appropriate perimeter control at all appropriate locations along the site perimeter and at all inlets to the storm drain system at all times during the rainy season		
Provide vegetated buffer strips between the active construction area and any water bodies.		
Provide stabilized construction entrances and limit all vehicle and foot traffic to those entrances.		
Inspection of Construction Site		
Inspection priority determined for site and frequency noted in SWPPP		
City Standard Storm Water Pollution Prevention Notes		
Standard Storm Water Pollution Prevention Notes included on Grading Plans		
500.4 – Water Pollution Control Drawings (WPCDs)		
WPCDs included as Attachment B		
Cover sheet listing BMPs that will be used and any selected options shown on fact sheets, along with construction notes and a legend		
All BMPs that can be shown are shown where appropriate on WPCDs		
BMP details included with WPCDs and appropriate CASQA and other standard references included		
Additional details shown as necessary to describe site specific BMP applications		
Grading sheets, drainage sheets or erosion control sheets used as base sheets for WPCDs.		
Base sheet details required:		
site perimeter		
Existing and proposed buildings, lots and roadways		
Permanent post construction BMPs		
Storm water collection and discharge points		
General topography before and after construction; anticipated discharge location(s)		
Tributary areas and drainage patterns to each on-site storm water inlet		
Receiving water or discharge point; off-site tributary drainage areas; temporary on-site drainage(s) to carry concentrated flows		
Outline of areas of existing vegetation; soil cover or native vegetation that will remain undisturbed		
Areas of cut and fill		
Outlines of areas of soil disturbance		
Locations of known toxic spills and discharges or contaminated soils		
Locations of potential non-storm water discharges such as dewatering operations, concrete saw cutting or coring, pressure washing, waterline flushing, diversions, cofferdams and vehicle equipment cleaning		
Locations of direct discharge into a Section 303(d) listed water body		
Sampling locations		
Ingress and egress points		
Temporary stockpiles		

Vehicle and equipment storage, fueling, maintenance and cleaning; and, phasing and/or construction staging		
BMPs for waste management and materials pollution control		
Show all storage, staging, borrow sites, stockpile sites, access roads, lay down areas and other non-development construction areas where construction activity will occur including contractors yard if in vicinity		
All contractor phasing and/or construction staging reflected on WPCDs for full scope of project		
500.5 – Construction BMP Maintenance, Inspection and Repair		
Description of program to maintain all construction BMPs		
Complete maintenance, inspection and repair program included as Attachment G		
500.6 – Post-Construction Storm Water Management		
500.6.1 Post-Construction Control Practices		
Describe the construction BMPs employed after all construction phases have been completed including their operation and maintenance after project completion		
For projects that require a Storm Water Management Plan (SWMP), the City SWMP identification number shall be referenced		
500.6.2 – Operation/Maintenance after Project Completion		
Description of any operations and maintenance requirements of post-construction control practices		
List parties responsible for long term operation and maintenance of permanent BMPs		
500.7 - Training		
Description of storm water pollution prevention training that contractor's inspection, maintenance and repair personnel have received		
Storm Water Pollution Prevention Manger (SWPPM) has a minimum of 24 hours training		
Document formal and informal storm water training on Trained Contractor Personnel Log Sheet included as Attachment I		
List of classes and copies of class completion documents may be submitted		
500.8 – List of Subcontractors		
List of subcontractors and individuals responsible for implementation of the SWPPP including telephone numbers and addresses included as Attachment J		
Section 600 – Monitoring Program and Reports		
600.1 – Site Inspections		
Required text included		
600.2 – Non-Compliance Reporting		
Required text included		
Sample Notice of Compliance form included as Attachment K		
Sample logging discharges form included as Attachment T		
600.3 – Record Keeping and Reports		
Required text included		

600.4 – Sampling and Analysis Plan for Sediment (for projects discharging to 303(d) waters)		
Required text included		
Describe if project discharges to 303(d) waters		
600.4.1 – Scope of Monitoring Activities		
List the impaired 303(d) water body and reason for impairment		
Describe the location(s) of direct discharge to each 303(d) listed water body		
Required text included		
600.4.2 – Monitoring Strategy		
Required text included		
Description of sampling schedule for monitoring impacts of direct discharges		
Description of sampling locations		
Description of rationale for selection of sampling location		
Identification of upstream location for sampling including GPS coordinates		
Identification of downstream location for sampling including GPS coordinates		
Include sampling location for run-on location if one exists		
Describe surrounding areas that may contribute to run-on sediment to site		
Sampling locations not located near point sources or confluences		
Sampling locations not located directly downstream from bridge or road surface run-off		
600.4.3 – Monitoring Preparation		
Identify sampling personnel including company name		
Describe training and qualifications of sampling personnel		
Identify contractors health and safety procedures for sampling personnel		
Identify alternate sampling personnel		
Identify state certified laboratory to analyze samples		
Describe strategy for ensuring adequate sample supplies are available prior to sampling		
Describe strategy for ensuring appropriate field testing equipment is available prior to sampling		
600.4.4 – Sample Collection and Handling		
Description of sample collection procedures		
Sample procedure in accordance with test procedure under 40 CFR Part 136		
Description of sample handling procedures		
Description of decontamination waste disposal requirements		
Description of sample collection documentation procedures		
Description of procedures for recording and correcting sampling data		
Chain of custody form required to be submitted to laboratory with samples		
Sampling activity log to be kept to document details of all sampling events		
Each sample bottle required to have proper and complete identification label		

600.4.5 – Sample Analysis		
Describe tests to be used on project samples using “Sample Collection, Preservation and Analysis for Monitoring Sedimentation/Siltation and/or Turbidity” form		
Appropriate answers included on form for discharges to 303(d) listed waters		
All appropriate blank fields on form filled in		
600.4.6 – Quality Assurance/Quality Control		
Required text included		
600.4.7 – Data Management and Reporting		
Required text included		
600.4.8 – Data Evaluation		
Required text included		
600.4.9 – Change of Conditions		
Required text included		
600.5 – Sampling and Analysis Plan for Non-Visible Pollutants		
Required text included		
600.5.1 – Scope of Monitoring Activities		
Required text included		
Identify general sources and locations of potential non-visible pollutants on project site for:		
Materials or wastes identified in Section 500.3.1		
Materials or wastes that are stored under watertight conditions		
Construction activities such as application of fertilizers, pesticides, herbicides etc that have occurred during a rain event of with 24 hours preceding a rain event		
Existing site features contaminated with non-visible pollutants		
Application of soil amendments and other chemicals with the potential to alter PH levels or contribute toxic pollutants to storm water runoff		
Storm water runoff from an area contaminated by historical usage of the site		
Storm water run-on to the project site with potential to contribute pollutants		
Breaches, malfunctions, leakages or spills from a BMP		
600.5.2 - Monitoring Strategy		
Required text included		
Description of sampling schedule		
Describe locations for sampling locations		
Description for rationale for selection sampling locations		
Sampling locations selected from each source of non-visible pollutants identified in Section 600.5.1		
Description of location for collecting uncontaminated background sample		
Description of location for sampling storm water run-on form each location identified in Section 600.5.1		

Description of sampling locationat off-site activities related to the project		
Sampling locations in areas that are safe, out of the path of heavy traffic and have attainable access		
List and describe surrounding sites and uses that may contribute run-on or airborne constituents to the site		
600.5.3 – Monitoring Preparation		
Identify party responsible for sample collection		
Describe training and qualifications of sampling personnel		
Identify contractors health and safety procedures for sampling personnel		
Identify alternate sampling personnel		
Identify state certified laboratory to analyze samples		
Describe strategy for ensuring adequate sample supplies are available prior to sampling		
Describe strategy for ensuring appropriate field testing equipment is available prior to sampling		
600.5.4 – Analytical Constituents		
Table 600-2 to be completed and attached		
List of non-visible pollutant source, non-visible pollutant name and water quality indicator		
Construction Material and Pollutant Testing Guidance Table – Non-Visible Pollutants table completed and attached		
Visible pollutants not added to table		
Table 600-3 completed and attached		
600.5.5 – Sample Collection and Handling		
Laboratory analysis, sampling, sample preservation and analyses conducted according to test procedures under 40 CFR Part 136		
Chain of custody form required to be submitted to laboratory with samples		
Sampling activity log to be kept to document details of all sampling events		
Each sample bottle required to have proper and complete identification label		
Description of sample collection procedures		
Description of sample handling procedures		
Description of decontamination waste disposal requirements		
Description of sample collection documentation procedures		
Description of procedures for recording and correcting sampling data		
Table 600-3 to be completed		
600.5.6 – Sample analysis		
Table 600-2 to be completed and attached		
Table 600-3 to be completed and attached		
Test method included for each non-visible pollutant identified in Table 600-2		
Procedure to contact laboratory for appropriate test method(s)/specification to be used for each constituent		
Field test instruments to be used for sampling identified		
600.5.7 – Quality Assurance/Quality Control		

Required text included		
600.5.8 – Data Management and Reporting		
Required text included		
600.5.9 Data Evaluation		
Required text included		
600.5.10 – Change of Conditions		
Required text included		

Appendix F

Tier 2 Construction SWPPP Template



Tier 2 Construction SWPPP Preparation Template

This document has been prepared to identify the various components that make up a Tier 2 Construction Storm Water Pollution Prevention Plan (SWPPP). A complete Tier 2 Construction SWPPP is composed of the following components:

1. A set of storm water pollution plan drawings meeting all the requirements of the Construction SWPPP Checklist items as contained in the Tier 2 Construction SWPPP Review Checklist attached as Appendix G to Section 3 (Construction SWPPP Standards and Requirements) in the City Storm Water Standards Manual.
2. A completed and signed Storm Water Compliance Form for a Tier 2 Construction SWPPP as contained in Appendix B to Section 3 (Construction SWPPP Standards and Requirements) in the City Storm Water Standards Manual.
3. A completed and signed Tier 2 Construction SWPPP Site Assessment Form (attached)
4. All supporting documentation, studies and reports as required to comply with the Municipal Permit and City Standards including any needed hydrology and hydraulic calculations, soils and geotechnical reports, spill prevention plan and manufacturers information and other data needed to clarify and support of the proposed storm water pollution prevention plan.

Included with this template is a Tier 2 Construction SWPPP Required Elements Checklist that should be used by the qualified Construction SWPPP preparer during the preparation of the plan to ensure that all required elements are included into the plan.



Tier 2 Construction SWPPP Site Assessment Form

Project ID: _____

Project Information:

Project Name: _____

Project Address/Location; _____

Responsible Parties/Contact Information:

Name of Preparer: _____

Qualification of Preparer (Registration/Certification): _____

Address: _____

City/State/Zip Code: _____

Phone Number: _____

Name of Owner/Owner's Agent: _____

Address: _____

City/State/Zip Code: _____

Phone Number: _____

Name of Emergency Contact: _____
(during construction)

Address: _____

City/State/Zip Code: _____

Phone Number: _____

Site and Construction Activity Description:

Construction Start Date: _____ End Date: _____

If work begins in rainy season or extends into rainy season, explain how project work can be scheduled can be altered to avoid rainy season impacts or to lessen exposure of site during rainy season: _____

Grading Quantities: Cut: _____CY; Fill: _____CY; Import: _____CY;
Export: _____CY

Any Stockpile Proposed? _____ If yes, then estimate quantity: _____CY

Estimated duration of stockpile: _____Months

Soils types: _____

Does site contain a preponderance of soils with USDA-NRCS erosion factor kf greater than or equal to 0.4? _____

Is a staging area proposed (yes/no)? _____

If yes, then where is it located? _____

Is concrete washout required (yes/no)? _____

Where is it located? _____

Any existing site contamination (yes/no)? _____

Where is it located? _____

Any vehicle storage, maintenance or fueling area proposed (yes/no)? _____

Where is it located? _____

Any de-watering operation proposed (yes/no)? _____

Where is it located? _____

Any other special operations proposed that may impair water quality (yes/no)? _____

What and where? _____

List materials that will be used on construction site and their handling and storage requirements

Material	Characteristics/Toxicity	Handling requirements

If any toxic or hazardous materials are proposed, then a spill prevention plan is required. Is a spill prevention plan required (yes/no)? _____.

If yes, attach spill prevention plan.

Perceived Threat to Storm Water Quality rating:

Using the Construction Threat Assessment Worksheet (attached as Appendix C to Section 3 (Construction SWPPP Standards and Requirements) of the City Storm Water Standards Manual, determine the projects Perceived Threat to Storm Water Quality rating.

The Construction Threat to Storm Water Quality rating for this project is: ☐ High ☐ Medium

Signature of Plan Preparer:

Signature: _____ Date: _____

Print Name: _____ Title: _____

Attachments:

- ☐ Storm Water Compliance Form – Tier 2
- ☐ Spill Prevention Plan
- ☐ Hydrology and/or hydraulic study
- ☐ Solis and/or geotechnical report(s)
- ☐ Other. List: _____

BMP Selection:

The following tables are provided to help identify and select appropriate site specific BMPs for the proposed project. Review the list of potential site construction activities and site conditions described along the left hand column of each sheet. Then, for each activity or site condition that is included in the proposed project, pick one or more of the BMPs described at the top of the form and place an X(s) in the box(es) that form(s) an intersection between the activity/site condition row and BMP column(s).

All structural (physical facility) BMP's should be shown on the site plan in the Construction SWPPP drawing set. Any proposed no-structural BMP should be noted in the Special Notes on the Construction SWPPP drawing set.

	Erosion Control BMPs													Wind Erosion BMPs
BMP Description →	Scheduling	Preservation of Existing Vegetation	Hydraulic Mulch	Hydroseeding	Soil Binders	Straw Mulch	Geotextiles & Mats	Wood Mulching	Earth Dikes and Drainage Swales	Velocity Dissipation	Slope Drains	Streambank Stabilization	Polyacrylamide	Wind Erosion Control
CASQA Designation →	EC-1	EC-2	EC-3	EC-4	EC-5	EC-6	EC-7	EC-8	EC-9	EC-10	EC-11	EC-12	EC-13	WE-1
Construction Activity or Site Condition														
Cleared Areas														
Flat pad graded areas														
Graded slope areas														
Trenching/Excavation														
Stockpiling														
Drilling/Boring														
Conduit/Pipe Installation														
Substructure/Pad Installation														
Staging Area														
Existing onsite vegetated areas														
Drainage flow onto site														
Drainage flows off of site														
Drainage at top of slope														
Other (list):														

[illegible]

	Tracking Control BMPs		
BMP Description →	Stabilized Construction Ingress/Egress	Stabilized Construction Roadway	Ingress/Egress Tire Wash
CASQA Designation → Construction Activity v	TR-1	TR-2	TR-3
Site Access point(s)			
Staging area access point(s)			
Maintenance access roads to BMPs			
Other (list):			

	Non-Storm Water Management BMPs															
BMP Description →	Water Conservation Practices	Dewatering Operations	Paving and Grinding Operations	Temporary Stream Crossing	Clear Water Diversion	Illicit Connection/Discharge	Potable Water/Irrigation	Vehicle and Equipment Cleaning	Vehicle and Equipment Fueling	Vehicle and Equipment Maintenance	Pile Driving Operations	Concrete Curing	Concrete Finishing	Material and Equipment Use	Demolition Adjacent to Water	Temporary Batch Plants
CASQA Designation →	NS-1	NS-2	NS-3	NS-4	NS-5	NS-6	NS-7	NS-8	NS-9	NS-10	NS-11	NS-12	NS-13	NS-14	NS-15	NS-16
Construction Activity & Site Conditions																
Landscaping & Irrigation																
Drilling/Boring																
Concrete/Asphalt Sawcutting																
Concrete flatwork																
Paving																
Wire, Cable & Connector Installation																
Site Housekeeping																
Staging Area																
Equipment Maintenance and Fueling																
Hazardous Substance Management																
Dewatering																
Stream crossing																
Material delivery																
Solid waste handling including trash and debris removal																
Concrete or stucco work																
Other (list):																

[illegible]



Tier 2 Construction SWPPP Required Elements Checklist

Required Elements	Required for Project	Preparer Verification
Construction SWPPP Drawing Set		
1. Standard Storm Water Pollution Prevention Notes		
A. General Site Management Requirements Notes		
B. Rainy Season Site Management Requirements Notes		
C. Erosion Control Hydroseeding, Planting and Irrigation Notes		
D. Special site specific notes		
2. City SWMP identification number affixed for high priority projects		
3. Construction Threat to Storm Water Quality rating (high or medium inspection frequency required?)		
4. Regional Water Board WDID Number shall be affixed for small linear utility projects as appropriate		
5. Project Location		
6. Legend		
7. Description of work		
A. Quantities (cut, fill, import, export)		
B. Area of disturbance		
C. Site conditions description		
1) Soils type		
8. Benchmark Information		
9. Preparer's signature and seal as appropriate		
10. City title block		
11. Emergency contact name, company and phone number		
12. Water shed project drains to listed		
13. Site Plan		
A. Existing topographic and cultural features of site and immediate vicinity as appropriate		
B. Scale and north arrow		
C. Project boundary and property lines		
D. Proposed grading contours and slopes clearly shown		

E. Staging areas, equipment storage, refueling, stockpiling and maintenance areas identified		
F. Storm drain inlets, open channels and natural drainages and watercourses that flow onto or drain off of the project site clearly delineated		
G. Potential source points of pollutants (fueling locations, waste container areas, wash racks, hazardous materials storage, etc)		
H. Site access locations		
I. Proposed BMPs – location and description		
1) Perimeter controls		
2) Erosion controls		
3) Sediment controls		
4) Tracking controls		
5) Non-storm water management controls		
6) Waste management and materials pollution controls		
7) Additional controls (as needed)		
8) Advanced treatment methods (as needed)		
J. Toxic or hazardous material contamination or spill areas		
K. Existing site BMP installations		
14. BMP detail drawings as needed		
Construction SWPPP Supplemental Documentation		
1. Storm Water Compliance Form for a Tier 2 Construction SWPPP completed and signed		
2. Tier 2 Site Assessment Form completed and signed		
3. Hydrology and hydraulic calculations (as needed for sediment basins and sizing of drainage swales to handle drainage during construction)		
4. Soils report (as needed when proposed BMP installation may affect ground water, slope stability or other geotechnical site condition)		

Appendix G

Tier 2 Construction SWPPP Plan Review Checklist



Tier 2 Construction SWPPP Review Checklist

PROJECT ID NO. _____ PROJECT NAME _____
 PLANCHECKER _____ DRAWING NO. _____ DATE _____

	1st Chk	2nd Chk	3rd Chk	Mylar	Comments
I. CONSTRUCTION SWPPP DRAWING					
1. ALL SHEETS					
A. Medium (to be reviewed at time of submission of final plan check)					
1) 24"x36" mylar film with title block (Alternative medium may be approved by Deputy City Engineer or designee)					
2) No "sticky-back", glued or taped on or together sections					
3) Drawing with waterproof ink or photographically reproduced					
B. Drafting					
1) Signed by the Qualified SWPPP Preparer					
2) Marked with the name, address & telephone number of the Qualified SWPPP Preparer preparing the plan & date of preparation					
3) Consecutively numbered & the total number of sheets shown					
4) Lettered in a neat & legible style no lettering smaller than 1/8"					
5) Title with the name & discretionary permit number of the City approval					
6) Prepared to appropriate Scale(s)					
7) Drawn as separate plans from Grading Plans, Building Plans or Improvement Plans					
8) Use standard plans & details to maximum extent					
9) Clearly designate between existing conditions & work proposed					
10) Scale noted, north arrow & bar scale provided					
11) No duplication of any section or detail letter designation.					
2. TITLE SHEET					
A. Erosion Control Notes Provided					
1) Standard Notes					
2) Supplemental special notes					
B. Project Location					
1) Legal description					
2) Assessor's parcel number					
3) Vicinity map (may be waived by Deputy City Engineer or designee)					
C. Legend					
1) Symbols per County Standards					

	1st Chk	2nd Chk	3rd Chk	Mylar	Comments
2) Every symbol used on the plans is shown in the legend					
3) Every symbol description clear & unequivocal					
D. Description & Quantities of Work					
1) Quantities for each item constructed or installed per these plans					
2) Erosion control Structural BMPs					
3) Standard references listed					
E. Site Plan - (certain site plan requirements may be waived for projects not requiring a grading plan per the approval of the Deputy City Engineer or designee)					
1) Full project site area shown (on one sheet if possible)					
2) Adequate adjacent site area shown to clearly indicate drainage courses that flow onto or off of the site					
3) Topography extends minimum 15' beyond limits of work & over entire property					
4) Existing contours and cultural features (screened back – 60% matte)					
5) Proposed contours and cultural features					
6) Existing & proposed contours clearly differentiated					
7) Slope symbols used only on slopes 2:1 or steeper					
8) Degree of slope shown for all slopes					
9) Fill slopes shaded					
10) Proposed lot lines shown					
11) Existing lot lines shown & dimensioned					
12) Street name or designations					
F. Drainage Facilities and Water Courses					
1) Storm drains and inlets existing and proposed					
2) Water courses and natural drainages shown with arrows indicating direction of flow					
3) Down drains					
4) Paved swales & terrace drains shown with arrows indicating direction of flow					
5) Existing and proposed basins					
G. Detail Drawings (Only when necessary. Generally refer to CASQA reference drawings)					
1) Modifications to standard drawings (CASQA or others) should be detailed					
H. Proposed Storm Water BMPs					
1) BMPs shown in bold ink and clearly visible					
2) BMP notes and identifiers bolded and clearly shown					

	1st Chk	2nd Chk	3rd Chk	Mylar	Comments
3) Proper CASQA (or other standard) designations used					
4) Perimeter control shown					
a. Flows onto site contained or diverted around construction area					
b. Flows off-site mitigated through retention, dissipation or other means					
c. Perimeter silt fencing, fiber rolls or other sediment control BMP for sloped areas or areas of sheet flow					
5) Erosion control shown					
a. Existing vegetation preserved where possible					
b. BMP specified for all sloped areas 3:1 or steeper					
c. Minimize area and duration of exposed soils					
6) Sediment control shown					
a. Basin or other appropriate BMP shown for flat areas less than 3:1					
b. Onsite and offsite inlets protected with storm drain inlet protection, gravel bags or other appropriate BMP					
c. Onsite earth swales and water courses protected with check dams, gravel bags, fiber rolls or other appropriate BMP					
d. Additional controls proposed for sites draining directly to receiving waters					
7) Tracking control shown					
a. Limit vehicle and equipment access points onto site					
b. Stabilized construction entrance called out on plan					
8) Non-Storm Water Management BMP indicated on plan					
a. Vehicle and equipment fueling and maintenance areas identified and protected					
b. Concrete Finishing and curing protections					
9) Waste Management and Materials Control BMPs					
a. Material Delivery and Storage BMPs indicated					
b. Stockpile management BMPs indicated					
c. Concrete mixer wash out BMP indicated					
I. General Site Management					
1) All weather access provide to basins and other BMPs that require cleaning or maintenance during rainy season					

	1st Chk	2nd Chk	3rd Chk	Mylar	Comments
2) 24 hour telephone number for emergency erosion control person and name of specific individual with authority and responsibility for erosion control					
3) Schedule for completion of installation of erosion control facilities					
4) Erosion control planting & method of starting & maintaining growth (irrigation)					
5) "Weather triggered" action plan for deploying BMPs with 48 hours of a predicted rain					
6) Description of standby BMP materials plan					
J. Project Conditions of Approval (list if applicable.)					
1)					
2)					
3. ADDITIONAL PLAN SHEETS (Additional plan sheets as required to adequately depict required BMP details or depict the site plan with an appropriate scale to clearly show all existing and proposed features)					
II. SUPPLEMENTAL DOCUMENTATION					
1. STORM WATER COMPLIANCE FORM (properly filled out and signed by Owner or Owner's Agent including appropriate City approval initial)					
2. COMPLETED SITE ASSESSMENT FORM					
3. SPILL PREVENTION PLAN (as required)					
5. SOILS/GEOTECHNICAL INVESTIGATION REPORT (As needed for geotechnical safety. Follow format indicated on Grading Plan Checklist when required)					
6. CALCULATIONS (As needed for projects with sedimentation basins or significant on-site/off-site drainage flows to determine sizing of swales and potential for erosive velocities)					
A. All					
1) All pages numbered					
2) Total number of pages on each page					
3) Each page labeled with the name address & telephone number of the preparing firm					
4) Neat & legible					
5) Indexed					
6) In logical order					
7) Cross-referenced to plans					
8) Bound					
9) Sturdy cover					
10) Signed, sealed & dates of preparation and expiration of registration applied on report cover or on bound-in cover letter					
11) Cover prominently labeled with subject, name & number of the discretionary permit for the project.					

	1st Chk	2nd Chk	3rd Chk	Mylar	Comments
B. Hydrology Per San Diego County Standards					
1) 1984 rainfall intensity curves					
2) Appropriate value of C					
3) Appropriate design method					
a. U.S. Army Corps of Engineers HEC series					
b. Soil Conservation Service Unit Hydrography					
c. Rational Method (Q=CIA) (0.5 sq. mile max)					
4) Tl correctly completed					
5) If correctly completed					
6) Tc correct					
7) Six hour/24 intensities correctly balanced					
8) Documentation provided or "plain english" output for computer generated reports					
C. Hydraulic					
1) Documentation provided or "plain english" output for computer generated reports					
2) Clear copies provided or all charts, maps, nomographs or other graphic used					
3) Cite general formula before inserting specific values (i.e. $Q=AV$; $Q=2.5 \times 18 = 4.75$ cfs)					
7. ENGINEER'S ESTIMATE (Needed only for projects with grading plans. Follow grading plan checklist requirements)					

Additional Comments: _____

Appendix H

Tier 1 Construction SWPPP Standard Template

CITY OF CARLSBAD

STANDARD FORM - TIER 1 STORM WATER POLLUTION PREVENTION PLAN

STORM WATER COMPLIANCE CERTIFICATE

- ✓

My project is not in a category of permit types exempt from the Construction SWPPP requirements

✓

My project is not located inside or within 200 feet of an environmentally sensitive area with a significant potential for contributing pollutants to nearby receiving waters by way of storm water runoff or non-storm water discharge(s).

✓

My project does not requires a grading plan pursuant to the Carlsbad Grading Ordinance (Chapter 15.16 of the Carlsbad Municipal Code)

✓

My project will not result in 2,500 square feet or more of soils disturbance including any associated construction staging, stockpiling, pavement removal, equipment storage, refueling and maintenance areas that meets one or more of the additional following criteria:

•

located within 200 feet of an environmentally sensitive area or the Pacific Ocean; and/or,

•

disturbed area is located on a slope with a grade at or exceeding 5 horizontal to 1 vertical; and/or

•

disturbed area is located along or within 30 feet of a storm drain inlet, an open drainage channel or watercourse; and/or

•

construction will be initiated during the rainy season or will extend into the rainy season (Oct. 1 through April 30).
- I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT ALL OF THE ABOVE CHECKED STATEMENTS ARE TRUE AND CORRECT. I AM SUBMITTING FOR CITY APPROVAL A TIER 1 CONSTRUCTION SWPPP PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF CITY STANDARDS.
- I UNDERSTAND AND ACKNOWLEDGE THAT I MUST: (1) IMPLEMENT BEST MANAGEMENT PRACTICES (BMPS) DURING CONSTRUCTION ACTIVITIES TO THE MAXIMUM EXTENT PRACTICABLE TO MINIMIZE THE MOBILIZATION OF POLLUTANTS SUCH AS SEDIMENT AND TO MINIMIZE THE EXPOSURE OF STORM WATER TO CONSTRUCTION RELATED POLLUTANTS; AND, (2) ADHERE TO, AND AT ALL TIMES, COMPLY WITH THIS CITY APPROVED TIER 1 CONSTRUCTION SWPPP THROUGHTOUT THE DURATION OF THE CONSTRUCTION ACTIVITIES UNTIL THE CONSTRUCTION WORK IS COMPLETE AND APPROVED BY THE CITY OF CARLSBAD.
- OWNER(S)/OWNER’S AGENT NAME (PRINT)
- OWNER(S)/OWNER’S AGENT NAME (SIGNATURE)
- DATE
- STORM WATER POLLUTION PREVENTION NOTES
1.

ALL NECESSARY EQUIPMENT AND MATERIALS SHALL BE AVAILABLE ON SITE TO FACILITATE RAPID INSTALLATION OF EROSION AND SEDIMENT CONTROL BMPS WHEN RAIN IS EMINENT.

2.

THE OWNER/CONTRACTOR SHALL RESTORE ALL EROSION CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.

3.

THE OWNER/CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED BY THE CITY ENGINEERING OR BUILDING INSPECTOR DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES WHICH MAY ARISE.

4.

ALL REMOVABLE PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FIVE (5) DAY RAIN PROBABILITY FORECAST EXCEEDS FORTY PERCENT (40%). SILT AND OTHER DEBRIS SHALL BE REMOVED AFTER EACH RAINFALL.

5.

ALL GRAVEL BAGS SHALL BE BURLAP TYPE WITH 3/4 INCH MINIMUM AGGREGATE.

6.

ADEQUATE EROSION AND SEDIMENT CONTROL AND PERIMETER PROTECTION BEST MANAGEMENT PRACTICE MEASURES MUST BE INSTALLED AND MAINTAINED.
- SPECIAL NOTES
- PROJECT INFORMATION
- Site Address: _____
- Assessor’s Parcel Number: _____
- Project ID: _____
- Construction Permit No.: _____
- Estimated Construction Start Date _____
- Project Duration _____Months
- Emergency Contact:
- Name: _____
- 24 hour Phone: _____
- Perceived Threat to Storm Water Quality
- ☐ Medium ☐ Low
- If medium box is checked, must attach a site plan sheet showing proposed work area and location of proposed structural BMPs
- For City Use Only
- CITY OF CARLSBAD
STANDARD TIER 1 SWPPP
- Approved By: _____
Date: _____
- Page 1 of ____

		Erosion Control BMPs					Sediment Control BMPs								Tracking Control BMPs			Non-Storm ater Management BMPs					Waste Management and Materials Pollution Control BMPs								
Best Management Practice (BMP) Description →		Geotextiles & Mats	Wood Mulching	Earth Dikes and Drainage Swales	Slope Drains		Silt Fence	Sediment Trap	Check Dam	Fiber Rolls	Gravel Bag Berm	Street Sweeping and Vacuuming	Sandbag Barrier	Storm Drain Inlet Protection		Stabilized Construction Ingress/Egress	Stabilized Construction Roadway		Water Conservation Practices	Paving and Grinding Operations	Potable Water/Irrigation	Vehicle and Equipment Cleaning		Material Delivery and Storage	Material Use	Stockpile Management	Spill Prevention and Control	Solid Waste Management	Hazardous Waste Management	Concrete Waste Management	
CASQA Designation → Construction Activity		EC-7	EC-8	EC-9	EC-11		SE-1	SE-3	SE-4	SE-5	SE-6	SE-7	SE-8	SE-10		TR-1	TR-2		NS-1	NS-3	NS-7	NS-8		WM-1	WM-2	WM-3	WM-4	WM-5	WM-6	WM-8	
	Grading/Soil Disturbance																														
	Trenching/Excavation																														
	Stockpiling																														
	Drilling/Boring																														
	Concrete/Asphalt Sawcutting																														
	Concrete flatwork																														
	Paving																														
	Conduit/Pipe Installation																														
	Stucco/Mortar Work																														
	Waste Disposal																														
	Staging/Lay Down Area																														
	Equipment Maintenance and Fueling																														
	Hazardous Substance Use/Storage																														
	Dewatering																														
	Site Access Across Dirt																														
	Other (list):																														

Instructions: Begin by reviewing the list of construction activities and checking the box to the left of any activity that will occur during the proposed construction. Add any other activity descriptions in the blank activity description boxes provided for that purpose and place a check in the box immediately to the left of the added activity description. For each activity described, pick one or more best management practices (BMPs) from the list located along the top of the form. Then place an X in the box at the place where the activity row intersects with the BMP column. Do this for each activity that was checked off and for each of the selected BMPs selected from the list. For Example – If the project includes site access across dirt, then check the box to the left of “Site Access Across Dirt”. Then review the list for something that applies such as “Stabilized Construcion Ingress/Egress” under Tracking Control. Follow along the “Site Access Across Dirt” row until you get to the “Stabilized Construction Ingress/Egress” column and place an X in the box where the two meet. As another example say the project included a stockpile that you intend to cover with a plastic sheet. Since plastic sheeting is not on the list of BMPs, then write in “Cover with Plastic” in the blank column under the heading Erosion Control BMPs. Then place an X in the box where “Stockpiling” row intersects the new “Cover with Plastic” column.

To learn more about what each BMP description means, you may wish to review the BMP Reference Handout prepared to assist applicants in the selection of appropriate Best Management Practice measures. The reference also explains the California Stormwater Quality Association (CASQA) designation and how to apply the various selected BMPs to a project.



Scale of map

Legend

Site Map

Features displayed on the map must include:

- An outline of the entire property
- Location and brief description of construction activity areas (e.g. grading, building, trenching, fueling areas, waste container area, wash racks, hazardous material storage areas, etc.)
- Location and flow direction arrows for existing drainage facilities (ditches, channels, inlets, storm drains, etc.)
- Location of existing storm water BMP controls (sediment basins, oil/water separators, sumps, etc.)
- Location of proposed storm water BMP controls with brief description or legend reference

Appendix I

City Standard Storm Water Pollution Prevention Notes

STORM WATER POLLUTION PREVENTION

GENERAL SITE MANAGEMENT REQUIREMENTS

THE FOLLOWING GENERAL SITE MANAGEMENT REQUIREMENTS SHALL BE ADHERED TO THROUGHOUT THE DURATION OF THE CONSTRUCTION WORK (YEAR ROUND):

1. IN CASE EMERGENCY WORK IS REQUIRED, CONTACT _____ FROM _____ AT _____.
2. DEVICES SHOWN ON CITY APPROVED PLANS SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE ENGINEERING INSPECTOR.
3. THE CONTRACTOR SHALL RESTORE ALL EROSION CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
4. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED BY THE CITY ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES WHICH MAY ARISE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
6. GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
7. ALL REMOVABLE PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FIVE (5) DAY RAIN PROBABILITY FORECAST EXCEEDS FORTY PERCENT (40%). SILT AND OTHER DEBRIS SHALL BE REMOVED AFTER EACH RAINFALL.
8. ALL GRAVEL BAGS SHALL BE BURLAP TYPE WITH 3/4 INCH MINIMUM AGGREGATE.
9. ALL GRADED AREAS MUST HAVE EROSION CONTROL PROTECTION BEST MANAGEMENT PRACTICE MEASURES PROPERLY INSTALLED.
10. ADEQUATE PERIMETER PROTECTION BEST MANAGEMENT PRACTICE MEASURES MUST BE INSTALLED AND MAINTAINED.
11. ADEQUATE SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES MUST BE INSTALLED AND MAINTAINED.
12. ADEQUATE MEASURES TO CONTROL OFFSITE SEDIMENT TRACKING MUST BE INSTALLED AND MAINTAINED.
13. A MINIMUM OF 125% OF THE MATERIAL NEEDED TO INSTALL STANDBY BEST MANAGEMENT PRACTICE MEASURES TO PROTECT THE EXPOSED AREAS FROM EROSION AND PREVENT SEDIMENT DISCHARGES, MUST BE STORED ONSITE. AREAS ALREADY PROTECTED FROM EROSION USING PHYSICAL STABILIZATION OR ESTABLISHED VEGETATION STABILIZATION MEASURES ARE NOT CONSIDERED TO BE "EXPOSED" FOR PURPOSES OF THIS REQUIREMENT.

14. THE OWNER/DEVELOPER/CONTRACTOR MUST HAVE AN APPROVED "WEATHER TRIGGERED" ACTION PLAN AND BE ABLE TO DEPLOY STANDBY BEST MANAGEMENT PRACTICE MEASURES TO COMPLETELY PROTECT THE EXPOSED PORTIONS OF THE SITE WITHIN 48 HOURS OF A PREDICTED STORM EVENT (A PREDICTED STORM EVENT IS DEFINED AS A FORECASTED, 40% CHANCE OF RAIN BY THE NATIONAL WEATHER SERVICE). ON REQUEST, THE OWNER/CONTRACTOR MUST PROVIDE PROOF OF THIS CAPABILITY THAT IS ACCEPTABLE TO THE CITY.
15. DEPLOYMENT OF PHYSICAL OR VEGETATION EROSION CONTROL MEASURES MUST COMMENCE AS SOON AS SLOPES ARE COMPLETED. THE OWNER/CONTRACTOR MAY NOT CONTINUE TO RELY ON THE ABILITY TO DEPLOY STANDBY BEST MANAGEMENT PRACTICE MATERIALS TO PREVENT EROSION OF SLOPES THAT HAVE BEEN COMPLETED.
16. UNLESS OTHERWISE SPECIFIED ON THE GRADING PLANS OR THE CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN DOCUMENTS, THE AREA THAT CAN BE CLEARED, GRADED, AND LEFT EXPOSED AT ONE TIME IS LIMITED TO THE AMOUNT OF ACREAGE THAT THE CONTRACTOR CAN ADEQUATELY PROTECT PRIOR TO A PREDICTED RAINSTORM. IT MAY BE NECESSARY TO DEPLOY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES IN AREAS THAT ARE NOT COMPLETED AND ARE NOT ACTIVELY BEING WORKED BEFORE ADDITIONAL GRADING IS ALLOWED TO PROCEED, AT THE DISCRETION OF THE PUBLIC WORKS INSPECTOR.

RAINY SEASON SITE MANAGEMENT REQUIREMENTS (OCTOBER 1 – APRIL 30)

THE FOLLOWING RAINY SEASON SITE MANAGEMENT REQUIREMENTS SHALL BE ADHERED TO THROUGHOUT THE RAINY SEASON DEFINED AS BEGINNING ON OCTOBER 1 OF ANY YEAR AND EXTENDING THROUGH APRIL 30TH OF THE FOLLOWING YEAR:

1. EROSION CONTROL, PERIMETER PROTECTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES MUST BE UPGRADED IF NECESSARY TO PROVIDE SUFFICIENT PROTECTION FOR STORMS LIKELY TO OCCUR DURING THE RAINY SEASON.
2. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS EMINENT.
3. ADEQUATE PHYSICAL OR VEGETATION EROSION CONTROL BEST MANAGEMENT PRACTICE MEASURES MUST BE INSTALLED AND ESTABLISHED FOR ALL COMPLETED SLOPES PRIOR TO THE START OF THE RAINY SEASON. THESE BEST MANAGEMENT PRACTICE MEASURES MUST BE MAINTAINED THROUGHOUT THE RAINY SEASON. IF A SELECTED BEST MANAGEMENT PRACTICE MEASURE FAILS, IT MUST BE REPAIRED AND IMPROVED, OR REPLACED WITH AN ACCEPTABLE ALTERNATE AS SOON AS IT IS SAFE TO DO SO. THE FAILURE OF A BEST MANAGEMENT PRACTICE MEASURE INDICATES IT WAS NOT ADEQUATE FOR THE CIRCUMSTANCES IN WHICH IT WAS USED. REPAIRS OR REPLACEMENTS MUST THEREFORE PUT A MORE ROBUST BEST MANAGEMENT PRACTICE MEASURE IN PLACE.

4. ALL VEGETATION EROSION CONTROL MUST BE ESTABLISHED PRIOR TO THE RAINY SEASON TO BE CONSIDERED AS A BEST MANAGEMENT PRACTICE MEASURE.
5. THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY DEPLOYING STANDBY EROSION CONTROL AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES PRIOR TO A PREDICTED RAINSTORM.
6. A DISTURBED AREA THAT IS NOT COMPLETED BUT THAT IS NOT BEING ACTIVELY GRADED MUST BE FULLY PROTECTED FROM EROSION IF LEFT FOR 10 OR MORE DAYS. THE ABILITY TO DEPLOY STANDBY BEST MANAGEMENT PRACTICE MEASURE MATERIALS IS NOT SUFFICIENT FOR THESE AREAS. BEST MANAGEMENT PRACTICE MEASURES MUST ACTUALLY BE DEPLOYED.

EROSION CONTROL HYDROSEEDING, PLANTING AND IRRIGATION

1. ALL PERMANENT AND TEMPORARY EROSION CONTROL PLANTING AND IRRIGATION SHALL BE INSTALLED AND MAINTAINED AS REQUIRED IN SECTION 212 OF THE STANDARD SPECIFICATIONS AND THE FOLLOWING:
 - A HYDROSEEDING SHALL BE APPLIED TO:
 - 1 ALL SLOPES THAT ARE GRADED 6:1 (HORIZONTAL TO VERTICAL) OR STEEPER WHEN THEY ARE:
 - a. THREE FEET OR MORE IN HEIGHT AND ADJACENT TO A PUBLIC WALL OR STREET.
 - b. ALL SLOPES 4 FEET OR MORE IN HEIGHT.
 - 2 AREAS GRADED FLATTER THAN 6:1 WHEN ANY OF THE FOLLOWING CONDITIONS EXIST:
 - a. NOT SCHEDULED FOR IMPROVEMENTS (CONSTRUCTION OR GENERAL LANDSCAPING) WITHIN 60 DAYS OF ROUGH GRADING.
 - b. IDENTIFIED BY THE PARKS AND RECREATION DIRECTOR AS HIGHLY VISIBLE TO THE PUBLIC.
 - c. HAVE ANY SPECIAL CONDITION IDENTIFIED BY THE CITY ENGINEER THAT WARRANTS IMMEDIATE TREATMENT.
 - B HYDROSEEDING AREAS SHALL BE IRRIGATED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
 - 1 ALL SLOPES THAT ARE GRADED 6:1 OR STEEPER AND THAT ARE:
 - a. THREE TO EIGHT FEET IN HEIGHT SHALL BE IRRIGATED BY HAND WATERING FROM QUICK COUPLERS/HOSE BIBS OR A CONVENTIONAL SYSTEM OF LOW PRECIPITATION SPRINKLER HEADS PROVIDING 100% COVERAGE.
 - b. GREATER THAN 8 FEET IN HEIGHT SHALL BE WATERED BY A CONVENTIONAL SYSTEM OF LOW PRECIPITATION SPRINKLER HEADS PROVIDING 100% COVERAGE.
 - 2 AREAS SLOPED LESS THAN 6:1 SHALL BE IRRIGATED AS APPROVED BY THE CITY ENGINEER, PRIOR TO HYDROSEEDING. THE DEVELOPER SHALL SUBMIT A PROPOSED SCHEME TO PROVIDE IRRIGATION TO THE CITY ENGINEER. THE PROPOSAL SHALL BE SPECIFIC REGARDING THE NUMBERS, TYPES, AND COSTS OF THE ELEMENTS OF THE PROPOSED SYSTEM.
 - 3 IRRIGATION SHALL MAINTAIN THE MOISTURE LEVEL OF THE SOIL AT THE OPTIMUM LEVEL FOR THE GROWTH OF THE HYDROSEEDING GROWTH.

C HYDROSEEDING MIX SHALL CONSIST OF ALL OF THE FOLLOWING:

- 1 SEED MIX SHALL CONSIST OF NO LESS THAN:
 - a. 20 lbs. PER ACRE OF ROSE CLOVER
 - b. 20 lbs. PER ACRE OF ZORRO FESCUE
 - c. 3 lbs. PER ACRE OF E SCHOOL CIA CALIFORNICA
 - d. 4 lbs. PER ACRE OF ACHILLEA MILLEFOLIA
 - e. 3 lbs. PER ACRE OF ALYSSUM (CARPET OF SNOW)
 - f. 1/2 lb. PER ACRE OF DIMORPHOLECA
 - g. ITEMS c,d,e, AND f OF THIS SUBSECTION MAY BE OMITTED ON LOCATIONS WHERE THE AREA BEING HYDROSEEDING IS NOT VISIBLE FROM EITHER A PUBLIC STREET OR RESIDENTIAL STRUCTURES.
 - h. ITEM a OF THIS SUBSECTION MUST BE INOCULATED WITH A NITROGEN FIXING BACTERIA AND APPLIED DRY EITHER BY DRILLING OR BROADCASTING BEFORE HYDROSEEDING.
 - i. ALL SEED MATERIALS SHALL BE TRANSPORTED TO THE JOBSITE IN UNOPENED CONTAINERS WITH THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE CERTIFICATION TAG ATTACHED TO, OR PRINTED ON SAID CONTAINERS.
 - j. NON-PHYTO-TOXIC WETTING AGENTS MAY BE ADDED TO THE HYDROSEED SLURRY AT THE DISCRETION OF THE CONTRACTOR.
- 2 TYPE 1 MULCH APPLIED AT THE RATE OF NO LESS THAN 2000 lbs PER ACRE. TYPE 6 MULCH (STRAW) MAY BE SUBSTITUTED, ALL OR PART, FOR HYDRAULICALLY APPLIED FIBER MATERIAL. WHEN STRAW IS USED, IT MUST BE ANCHORED TO THE SLOPE BY MECHANICALLY PUNCHING NO LESS THAN 50% OF THE STRAW INTO THE SOIL.
- 3 FERTILIZER CONSISTING OF AMMONIUM PHOSPHATE SULFATE, 16-20-0, WITH 15% SULPHUR APPLIED AT THE RATE OF 500 lbs. PER ACRE.

D AREAS TO BE HYDROSEEDING SHALL BE PREPARED PRIOR TO HYDROSEEDING BY:

- 1 ROUGHENING THE SURFACE TO BE PLANTED BY ANY OR A COMBINATION OF:
 - a. TRACK WALKING SLOPES STEEPER THAN 6:1
 - b. HARROWING AREAS 6:1 OR FLATTER THAT ARE SUFFICIENTLY FRIABLE.
 - c. RIPPING AREAS THAT WILL NOT BREAK UP USING ITEMS a OR b ABOVE.
- 2 CONDITIONING THE SOILS SO THAT IT IS SUITABLE FOR PLANTING BY:
 - a. ADJUSTING THE SURFACE SOIL MOISTURE TO PROVIDE A DAMP BUT NOT SATURATED SEED BED.
 - b. THE ADDITION OF SOIL AMENDMENTS, PH ADJUSTMENT, LEACHING COVERING SALINE SOILS TO PROVIDED VIABLE CONDITIONS FOR GROWTH.

E HYDROSEEDING AREAS SHALL BE MAINTAINED TO PROVIDE A VIGOROUS GROWTH UNTIL THE PROJECT IS PERMANENTLY LANDSCAPED OR, FOR AREAS WHERE HYDROSEEDING IS THE PERMANENT LANDSCAPING, UNTIL THE PROJECT IS COMPLETED AND ALL BONDS RELEASED.

2. ALL SLOPES SHALL HAVE IRRIGATION INSTALLED AND BE STABILIZED, PLANTED AND/OR HYDROSEEDDED WITHIN TEN (10) DAYS OF THE TIME WHEN EACH SLOPE IS BROUGHT TO GRADE AS SHOWN ON THE APPROVED GRADING PLANS.
3. SHOULD GERMINATION OF HYDROSEEDDED SLOPES FAIL TO PROVIDE EFFICIENT COVERAGE OF GRADED SLOPES (90% COVERAGE) PRIOR TO OCTOBER 1, THE SLOPES SHALL BE STABILIZED BY AN APPROPRIATE EROSION CONTROL MATTING MATERIAL APPROVED BY THE PUBLIC WORKS INSPECTOR.
4. LANDSCAPING SHALL BE ACCOMPLISHED ON ALL SLOPES AND PADS AS REQUIRED BY THE CITY OF CARLSBAD LANDSCAPE MANUAL, THE LANDSCAPING PLANS FOR THIS PROJECT, DRAWING NO. _____, AND/OR AS DIRECTED BY THE CITY ENGINEER OR PLANNING DIRECTOR.
5. THE OWNER/APPLICANT SHALL ENSURE THAT ALL CONTRACTORS SHALL COORDINATE THE WORK OF THIS CONSTRUCTION SWPPP WITH THAT SHOWN ON ANY GRADING PLANS, LANDSCAPE AND IRRIGATION PLANS AND IMPROVEMENT PLANS AS REQUIRED FOR THIS PROJECT WORK.

Appendix J

Excerpts from EPA Guidelines for Selecting Construction BMPs

Chapter 4: SWPPP Development—Selecting Erosion and Sediment Control BMPs

► This chapter presents a brief discussion of erosion and sediment control principles and a discussion of some commonly used BMPs.

This document is not intended as an engineering or design manual on BMPs. The engineer or other qualified person that develops the details of your sediment and erosion control plan should be using the appropriate state or local specifications. The descriptions below provide a kind of checklist of the things to look for and some helpful installation and maintenance hints.

Erosion and sediment controls are the structural and non-structural practices used during the construction process to keep sediment in place (erosion control) and to capture any sediment that is moved by stormwater before it leaves the site (sediment control). Erosion controls—keeping soil where it is—are the heart of any effective SWPPP. Your SWPPP should rely on erosion controls as the primary means of preventing stormwater pollution. Sediment controls provide a necessary second line of defense to properly designed and installed erosion controls.

The suite of BMPs that you include in your SWPPP should reflect the specific conditions at the site. The information that you collected in the previous steps should help you select the appropriate BMPs for your site. An effective SWPPP includes a combination or suite of BMPs that are designed to work together.

Ten Keys to Effective Erosion and Sediment Control (ESC)

The ultimate goal of any SWPPP is to protect rivers, lakes, wetlands, and coastal waters that could be affected by your construction project. The following principles and tips should help you build an effective SWPPP. **Keep in mind that there are many BMP options available to you. We have selected a few common BMPs to help illustrate the principles discussed in this chapter.**

Erosion Control (keeping the dirt in place) and Minimizing the Impact of Construction

1. Minimize disturbed area and protect natural features and soil
2. Phase construction activity
3. Control stormwater flowing onto and through the project
4. Stabilize soils promptly
5. Protect slopes

Sediment Controls (the second line of defense)

6. Protect storm drain inlets
7. Establish perimeter controls
8. Retain sediment on-site and control dewatering practices
9. Establish stabilized construction exits
10. Inspect and maintain controls

Take a Closer Look...

BMPs in Combination

BMPs work much better when they are used in combination. For instance, a silt fence should not be used alone to address a bare slope. An erosion control BMP should be used to stabilize the slope, and the silt fence should serve as the backup BMP.

What does this mean to me?

Wherever possible, rely on erosion controls to keep sediment in place. Back up those erosion controls with sediment controls to ensure that sediment doesn't leave your site. Continually evaluate your BMPs. Are they performing well? Could the addition of a supplemental BMP improve performance? Should you replace a BMP with another one that might work better? Using BMPs in series also gives you some protection in case one BMP should fail.

Erosion Control and Minimizing the Impact of Construction

ESC Principle 1: Minimize disturbed area and protect natural features and soil. As you put together your SWPPP, carefully consider the natural features of the site that you assessed in Chapter 3. By carefully delineating and controlling the area that will be disturbed by grading or construction activities, you can greatly reduce the potential for soil erosion and stormwater pollution problems. Limit disturbed areas to only those necessary for the construction of your project. Natural vegetation is your best and cheapest erosion control BMP.



Figure 7. Protect vegetated buffers by using silt fence or other sediment controls.

Protecting and preserving topsoil is also a good BMP. Removing topsoil exposes underlying layers that are often more prone to erosion and have less infiltration capacity. Keeping topsoil in place preserves the natural structure of the soils and aids the infiltration of stormwater.

ESC Principle 2: Phase construction activity. Another technique for minimizing the duration of exposed soil is phasing. By scheduling or sequencing your construction work and concentrating it in certain areas, you can minimize the amount of soil that is exposed to the elements at any given time. Limiting the area of disturbance to places where construction activities are underway and stabilizing them as quickly as possible can be one of your most effective BMPs.

ESC Principle 3: Control stormwater flowing onto and through your project. Plan for any potential stormwater flows coming onto the project area from upstream locations, and divert (and slow) flows to prevent erosion. Likewise, the volume and velocity of on-site stormwater runoff should be controlled to minimize soil erosion.

Example BMP: Diversion Ditches or Berms

Description: Diversion ditches or berms direct runoff away from unprotected slopes and may also direct sediment-laden runoff to a sediment-trapping structure. A diversion ditch can be located at the upslope side of a construction site to prevent surface runoff from entering the disturbed area. Ditches or berms on slopes need to be designed for erosive velocities. Also, ensure that the diverted water is released through a stable outlet and does not cause downslope or downstream erosion or flooding.

Installation Tips:

- Divert run-on and runoff away from disturbed areas
- Ensure that the diversion is protected from erosion, using vegetation, geotextiles, or other appropriate BMPs
- Divert sediment-laden water to a sediment-trapping structure
- Use practices that encourage infiltration of stormwater runoff wherever possible

Maintenance:

- Inspect diversions and berms, including any outlets, regularly and after each rainfall
- Remove any accumulated sediment

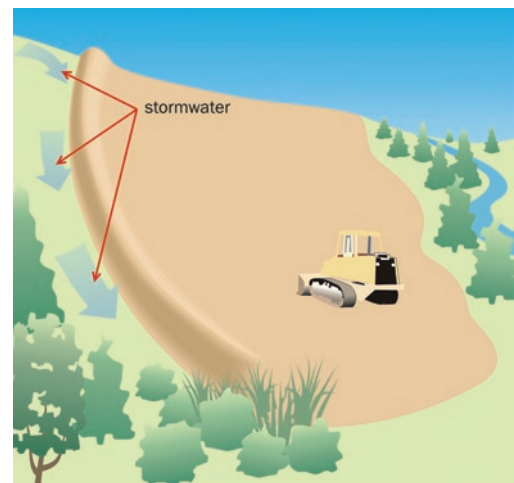


Figure 8. Illustration of a construction berm to divert stormwater away from the disturbed construction area.

ESC Principle 4: Stabilize soils promptly.

Where construction activities have temporarily or permanently ceased, you should stabilize exposed soils to minimize erosion. You should have stabilization measures in place after grading activities have ceased (many permits require stabilization within a specified time frame). You can provide either temporary or permanent cover to protect exposed soils. Temporary measures are necessary when an area of a site is disturbed but where activities in that area are not completed or until permanent BMPs are established. Topsoil stockpiles should also be protected to minimize any erosion from these areas. Temporary-cover BMPs include temporary seeding, mulches, matrices, blankets and mats, and the use of soil binders (there may be additional state and local requirements for the use of chemical-based soil binders). Permanent-cover BMPs include permanent seeding and planting, sodding, channel stabilization, and vegetative buffer strips. Silt fence and other sediment control measures are not stabilization measures.

SWPPP Tip!

Final Stabilization

Once construction activity in an area is completed and the area is stabilized (typically by achieving 70 percent permanent vegetative cover), you can mark this area on your SWPPP and discontinue inspections in that area. By bringing areas of your site to final stabilization, you can reduce your workload associated with maintaining and inspecting BMPs. For more information on final stabilization, see Chapter 9.

Example BMP: Temporary Seeding

Description: Temporarily seeding an area to establish vegetative cover is one of the most effective, and least expensive, methods of reducing erosion. This approach, as a single BMP, might not be appropriate on steep slopes, when vegetation cannot be established quickly enough to control erosion during a storm event, or when additional activities might occur soon in the area.

Installation Tips:

- Seed and mulch area (the mulch provides temporary erosion protection by protecting the soil surface, moderating temperature, and retaining moisture while seeds germinate and grow)

- Water regularly, if needed, to ensure quick growth
- Maintain backup BMPs, such as silt fence or settling ponds

SWPPP Tip!

Wind Control BMPs

In areas where dust control is an issue, your SWPPP should include BMPs for wind-erosion control. These consist of mulching, wet suppression (watering), and other practices.

ESC Principle 5: Protect slopes. Protect all slopes with appropriate erosion controls. Steeper slopes, slopes with highly erodible soils, or long slopes require a more complex combination of controls. Erosion control blankets, bonded fiber matrices, or turf reinforcement mats are very effective options. Silt fence or fiber rolls may also be used to help control erosion on moderate slopes and should be installed on level contours spaced at 10- to 20-foot intervals. You can also use diversion channels and berms to keep stormwater off slopes.

Example BMP: Rolled erosion control products

Description: Erosion control products include mats, geotextiles, and erosion control blankets and products that provide temporary stabilization and help to establish vegetation on disturbed soils. Such products help control erosion and help establish vegetation and are often used on slopes, channels, or stream banks.

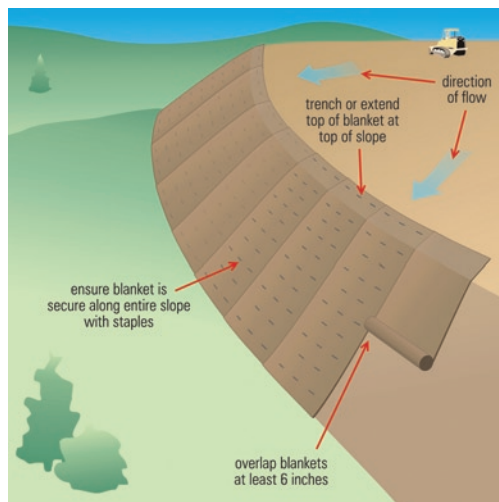


Figure 9. Illustration of erosion control blankets installed on slope.

Installation Tips:

- Use rolled erosion-control products on slopes steeper than 3 to 1 (horizontal to vertical) and in swales or long channels

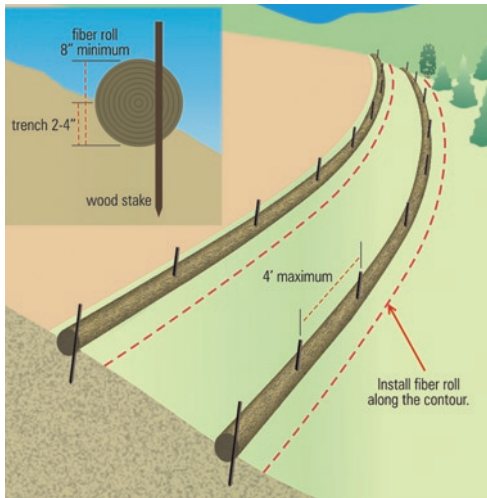


Figure 10. Illustration of a fiber roll installation along a slope.

- Trench the top of the blanket into the ground to prevent runoff from flowing under the blanket
- Overlap the lower end of the top mat over the top of the downslope mat to ensure that runoff stays on top of the blankets and mats
- Staple blankets and mats according to specifications

Maintenance:

- Periodically inspect for signs of erosion or failure
- Repair the blanket or mat if necessary
- Continue inspections until vegetation is established at the level required to qualify as final *stabilization*

ESC Principle 6: Protect storm drain

inlets. Protect all inlets that could receive stormwater from the project until final stabilization of the site has been achieved. Install inlet protection before soil-disturbing activities begin. Maintenance throughout the construction process is important. Upon completion of the project, storm drain inlet protection is one of the temporary BMPs that should be removed. Storm drain inlet protection should be used not only for storm drains within the active construction project, but also for storm drains outside the project area that might receive stormwater discharges from the project. If there are storm drains on private property that could receive stormwater runoff from your project, coordinate with the owners of that property to ensure proper inlet protection.

Example BMP: Storm Drain Inlet Protection

Description: Storm drain inlet protection prevents sediment from entering a storm drain by surrounding or covering the inlet with a filtering material. Several types of filters are commonly used for inlet protection: silt fence, rock-filled bags, or block and gravel. The type of filter used depends on the inlet type (for example, curb inlet, drop inlet), slope, and volume of flow. Many different commercial inlet filters are also available. Some commercial inlet filters are placed in front of or on top of an inlet, while others are placed inside the inlet under the grate.

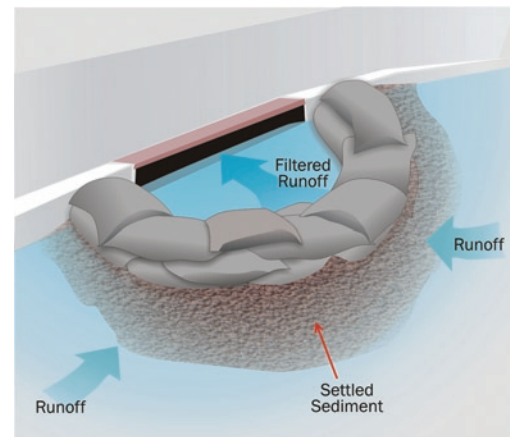


Figure 11. Illustration of a storm drain inlet with rock-filled bags filtering stormwater.

Installation Tips:

- Install inlet protection as soon as storm drain inlets are installed and before land-disturbance activities begin in areas with existing storm drain systems
- Protect all inlets that could receive stormwater from your construction project
- Use in conjunction with other erosion prevention and sediment control BMPs—remember, inlet protection is a secondary BMP!
- Design your inlet protection to handle the volume of water from the area being drained. Ensure that the design is sized appropriately.

Maintenance:

- Inspect inlets frequently and after each rainfall

- Remove accumulated sediment from around the device and check and remove any sediment that might have entered the inlet
- Replace or repair the inlet protection if it becomes damaged
- Sweep streets, sidewalks, and other paved areas regularly

SWPPP Tip!

Storm drain inlet protection should never be used as a primary BMP! Use erosion control techniques such as hydromulching or erosion-control blankets to prevent erosion. Use inlet protection and other sediment control BMPs as a *backup* or last line of defense.

ESC Principle 7: Establish perimeter controls.

Maintain natural areas and supplement them with silt fence and fiber rolls around the perimeter of your site to help prevent soil erosion and stop sediment from leaving the site. Install controls on the downslope perimeter of your project (it is often unnecessary to surround the entire site with silt fence). Sediment barriers can be used to protect stream buffers, riparian

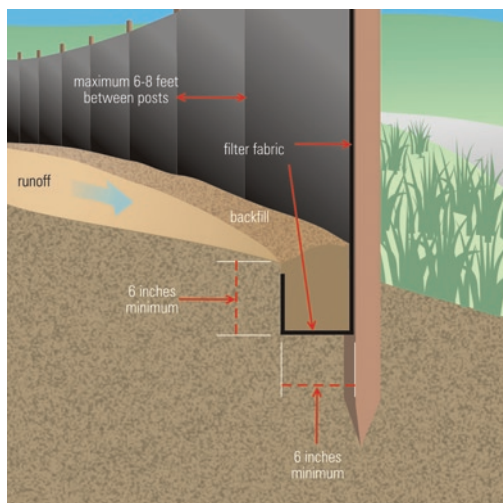


Figure 12. Illustration of proper techniques to use in installing silt fence.

areas, wetlands, or other waterways. They are effective only in small areas and should not be used in areas of concentrated flow.

Example BMP: Silt Fence and Fiber Rolls

Description: A silt fence is a temporary sediment barrier consisting of a geotextile attached to supporting posts and trenched into the ground. Silt fencing is intended to retain sediment that has been dislodged by stormwater. It is designed only for runoff from small areas and is not intended to handle flows from large slopes or in areas of concentrated flow. Fiber rolls serve the same purpose and consist of an open mesh tubular sleeve filled with a fibrous material which traps sediment. Fiber rolls are generally staked to the ground.

Installation Tips:

DO:

- Use silt fence or fiber rolls as perimeter controls, particularly at the lower or down slope edge of a disturbed area
- Leave space for maintenance between toe of slope and silt fence or roll
- Trench in the silt fence on the uphill side (6 inches deep by 6 inches wide)
- Install stakes on the downhill side of the fence or roll
- Curve the end of the silt fence or fiber roll up-gradient to help it contain runoff

DON'T:

- Install a silt fence or fiber rolls in ditches, channels, or areas of concentrated flow
- Install it running up and down a slope or hill
- Use silt fencing or fiber rolls alone in areas that drain more than a quarter-acre per 100 feet of fence

Maintenance:

- Remove sediment when it reaches one-third of the height of the fence or one-half the height of the fiber roll
- Replace the silt fence or roll where it is worn, torn, or otherwise damaged
- Retrench or replace any silt fence or roll that is not properly anchored to the ground

ESC Principle 8: Retain sediment on-site and control dewatering practices. Sediment barriers described in ESC Principle 7 can trap sediment from small areas, but when sediment retention from a larger area is required, consider using a temporary sediment trap or sediment basin. These practices detain sediment-laden runoff for a period of time, allowing sediment to settle before the runoff is discharged. Proper design and maintenance are essential to ensure that these practices are effective.

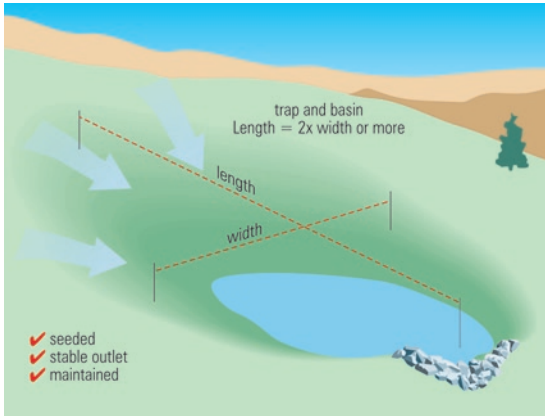


Figure 13. Illustration of a sediment basin.

You should use a sediment basin for common drainage locations that serve an area with 10 or more acres disturbed at any one time. The basin should be designed to provide storage for

the volume of runoff from the drainage area for at least a 2-year, 24-hour storm (or 3,600 cubic feet of storage per acre drained, which is enough to contain 1 inch of runoff, if the 2-year, 24-hour calculation has not been performed). Check your permit for exact basin sizing requirements. Sediment basins should be located at low-lying areas of the site and on the down-gradient side of bare soil areas where flows converge. Do not put sediment traps or basins in or immediately adjacent to flowing streams or other waterways.

Where a large sediment basin is not practical, use smaller sediment basins or sediment traps (or both) where feasible. At a minimum, use silt fences, vegetative buffer strips, or equivalent sediment controls for all down-gradient boundaries (and for those side-slope boundaries deemed appropriate for individual site conditions).

Dewatering practices are used to remove ground water or accumulated rain water from excavated areas. Pump muddy water from these areas to a temporary or permanent sedimentation basin or to an area completely enclosed by silt fence in a flat vegetated area where discharges can infiltrate into the ground.

Never discharge muddy water into storm drains, streams, lakes, or wetlands unless the sediment has been removed before discharge.

Keep in mind that some states and local jurisdictions require a separate permit for dewatering activities at a site.

ESC Principle 9: Establish stabilized construction exits. Vehicles entering and leaving the site have the potential to track significant amounts of sediment onto streets. Identify and clearly mark one or two locations where vehicles will enter and exit the site and focus stabilizing measures at those locations. Construction entrances are commonly made from large crushed rock. They can be further stabilized using stone pads or concrete. Also, steel wash racks and a hose-down system will remove even more mud and debris from vehicle tires. Divert runoff from wash areas to a sediment trap or basin. No system is perfect, so sweeping the street regularly completes this BMP.

Example BMP: Stabilized Construction Exit

Description: A rock construction exit can reduce the amount of mud transported onto paved roads by vehicles. The construction exit does this by removing mud from vehicle tires before the vehicle enters a public road.

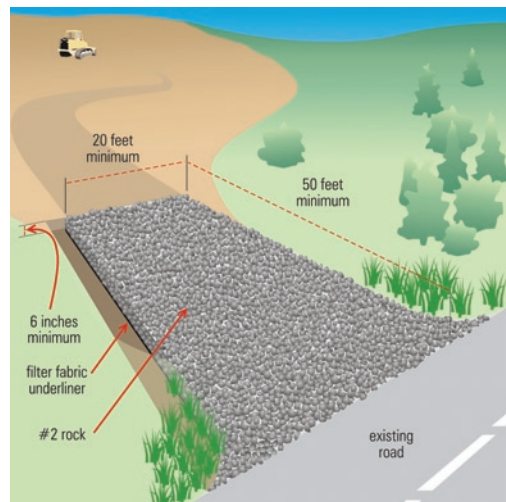


Figure 14. Illustration of a stabilized construction exit.

You might also want to install a wheel wash when mud is especially difficult to remove or space doesn't allow sufficient tire revolutions (four or five are needed) before exiting the site. Direct wash water to a suitable settling area—do not discharge wash water to a stream or storm drain!

Installation tips:

- Ensure that the exit is at least 50 feet long (generally, the length of two dump trucks) and graded so runoff does not enter the adjacent street
- Place a geotextile fabric under a layer of aggregate at least 6–12 inches thick. The stones or aggregate should be 3–6 inches in diameter
- Train employees and subcontractors to use the designated construction exits. Empower your employees to provide directions to subcontractors and others that are not on the site every day

Maintenance:

- Replenish or replace aggregate if it becomes clogged with sediment
- Sweep the street regularly

ESC Principle 10: Inspect and maintain controls.

Inspection and maintenance is just as important as proper planning, design, and installation of controls. Without adequate maintenance, erosion and sediment controls will quickly fail, sometimes after just one rainfall, and cause significant water quality problems and potential violations of the NPDES construction general permit. Your permit likely requires you to maintain your BMPs at all times. To do this effectively, you should establish an inspection and maintenance approach or strategy that includes both regular and spot inspections. Inspecting both prior to predicted storm events and after will help ensure that controls are working effectively. Perform maintenance or corrective action as soon as problems are noted. **Inspection and maintenance of BMPs are addressed in more detail in Chapter 6.**

Other Sediment and Erosion Control Techniques

As mentioned at the beginning of this chapter, there are many other erosion and sediment control techniques that can be used effectively. The BMPs highlighted in this chapter are among those more commonly used and highlight many general erosion and sediment control principles for which other BMPs may be used effectively. Check to see if your state or local government has developed a BMP design manual for detailed information on any BMP you are considering. Appendix D lists several good BMP design manuals. You can also find out more about various BMPs by visiting EPA's Menu of BMPs at www.epa.gov/npdes/menuofbmps

The following BMPs are also commonly used at construction sites.

Erosion control measures:

- Surface roughening, trackwalking, scarifying, sheepsfoot rolling, imprinting
- Soil bioengineering techniques (e.g., live staking, fascines, brush wattles)
- Composting
- Sodding

Sediment control and runoff management measures:

- Gravel bag barrier
- Compost berm
- Rock or brush filters
- Baffles or skimmers in sediment basins to increase effectiveness
- Lowering soil levels near streets and sidewalks to prevent runoff
- Level spreaders
- Energy dissipaters
- Check dams

Chapter 5: SWPPP Development—Selecting Good Housekeeping BMPs

Six Key Pollution Prevention Principles for Good Housekeeping

Construction projects generate large amounts of building-related waste, which can end up polluting stormwater runoff if not properly managed. The suite of BMPs that are described in your SWPPP must include pollution prevention (P2) or good housekeeping practices that are designed to prevent contamination of stormwater from a wide range of materials and wastes at your site. The six principles described below are designed to help you identify the pollution prevention practices that should be described in your SWPPP and implemented at your site.

1. Provide for waste management
2. Establish proper building material staging areas
3. Designate paint and concrete washout areas
4. Establish proper equipment/vehicle fueling and maintenance practices
5. Control equipment/vehicle washing and allowable non-stormwater discharges
6. Develop a spill prevention and response plan

P2 Principle 1: Provide for waste management. Design proper management procedures and practices to prevent or reduce the discharge of pollutants to stormwater from solid or liquid wastes that will be generated at your site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters.

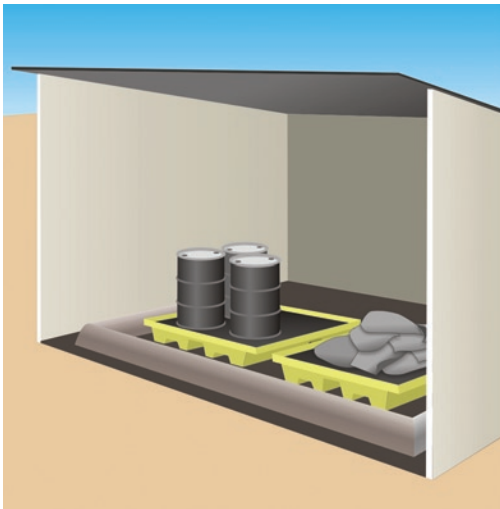


Figure 15. Illustration showing construction materials with secondary containment and overhead cover to prevent stormwater contamination.

Provide convenient, well-maintained, and properly located toilet facilities. Provide for regular inspections, service, and disposal. Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater. Treat or dispose of sanitary and septic waste in accordance with state or local regulations.

Proper material use, storage, waste disposal, and training of employees and subcontractors can prevent or reduce the discharge of hazardous and toxic wastes to stormwater. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills (see the following P2 principles).

► This chapter presents a brief discussion of good housekeeping principles to consider to ensure your construction site does not contaminate stormwater runoff.

As noted in Chapter 3, sediment is the principal pollutant of concern in stormwater discharges from construction sites. But, EPA's CGP and many state construction general permits require that the SWPPP describe good housekeeping measures for other pollutants that might be found on construction sites. This chapter discusses these measures.

Waste Management Checklist

Solid or Construction Waste

- ✓ Designate trash and bulk waste-collection areas on-site
- ✓ Recycle materials whenever possible (e.g., paper, wood, concrete, oil)
- ✓ Segregate and provide proper disposal options for hazardous material wastes
- ✓ Clean up litter and debris from the construction site daily
- ✓ Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to further minimize the likelihood of contaminated discharges.

Sanitary and Septic Waste

- ✓ Provide restroom facilities on-site
- ✓ Maintain clean restroom facilities and empty porta-johns regularly
- ✓ Provide secondary containment pans under porta-johns, where possible
- ✓ Provide tie-downs or stake downs for porta-johns in areas of high winds
- ✓ Educate employees, subcontractors, and suppliers on locations of facilities
- ✓ Do not discharge or bury wastewater at the construction site
- ✓ Inspect facilities for leaks, repair or replace immediately

Hazardous Materials and Wastes

- ✓ Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup
- ✓ Designate hazardous waste-collection areas on-site
- ✓ Place all hazardous and toxic material wastes in secondary containment
- ✓ Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present

P2 Principle 2: Establish proper building material handling and staging areas.

Your SWPPP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or any building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment prevents a spill from spreading across the site and include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of ground water. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and so on. Designated staging areas will help you to monitor the use of materials and to clean up any spills. Training employees and subcontractors is essential to the success of this pollution prevention principle.

SWPPP Tip!

Material Staging Area Measures

Your SWPPP should include procedures for storing materials that can contribute pollutants to stormwater. Consider the following:

- Train employees and subcontractors in proper handling and storage practices
- Designate site areas for storage. Provide storage in accordance with secondary containment regulations and provide cover for hazardous materials when necessary. Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or any other signs of deterioration and tested for soundness
- Reuse and recycle construction materials when possible

P2 Principle 3: Designate washout areas.

Concrete contractors should be encouraged, where possible, to use the washout facilities at their own plants or dispatch facilities. If it is necessary to provide for concrete washout areas on-site, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills,

EPA recommends that you locate them at least 50 yards away from storm drains and watercourses whenever possible.

Several companies rent or sell prefabricated washout containers, and some provide disposal of waste solids and liquids along with the containers. These prefabricated containers are sturdy and provide a more reliable option for preventing leaks and spills of wash water than self-constructed washouts. Alternatively, you can construct your own washout area, either by digging a pit and lining it with 10 mil plastic sheeting or creating an aboveground structure from straw bales or sandbags with a plastic liner. If you create your own structure, you should inspect it daily for leaks or tears in the plastic because these structures are prone to failure.

Regular inspection and maintenance are important for the success of this BMP. Both self-constructed and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. You should also inspect for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

SWPPP Tip!

Washout Area Measures

When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and your maintenance and inspection procedures in your SWPPP.

- Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams
- Establish washout areas and advertise their locations with signs
- Provide adequate containment for the amount of wash water that will be used
- Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed
- Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Full service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground. It should not be discharged to a sanitary sewer system without first receiving written permission from the system operator

P2 Principle 4: Establish proper equipment/vehicle fueling and maintenance practices.

Performing equipment/vehicle fueling and maintenance at an off-site facility is preferred over performing these activities on the site, particularly for road vehicles (e.g., trucks, vans). For grading and excavating equipment, this is usually not possible or desirable. Create an on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area; outdoor vehicle fueling and maintenance is a potentially significant source of stormwater pollution. Significant maintenance on vehicles and equipment should be conducted off-site.

SWPPP Tip!

Equipment/Vehicle Fueling and Maintenance Measures

Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the locations of these areas and your inspection and maintenance procedures in your SWPPP.

- Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shut-off valves, and such)
- Inspect on-site vehicles and equipment daily for leaks, equipment damage, and other service problems
- Clearly designate vehicle/equipment service areas away from drainage facilities and watercourses to prevent stormwater run-on and runoff
- Use drip pans, drip cloths, or absorbent pads when replacing spent fluids
- Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible

P2 Principle 5: Control equipment/vehicle washing and allowable non-stormwater discharges.

Environmentally friendly washing practices can be practiced at every construction site to prevent contamination of surface and ground water from wash water. Procedures and practices include using off-site facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water or routing to the sanitary sewer; and training employees and subcontractors in proper cleaning procedures.

Take a Closer Look...

Non-Stormwater Runoff

A construction site might have sources of runoff that are not generated by stormwater. These non-stormwater discharges include fire hydrant flushing, vehicle or equipment wash water (no detergents!), water used to control dust, and landscape irrigation.

What does this mean to me?

Take steps to infiltrate these sources of uncontaminated water into the ground. You can also route these sources of water to sediment ponds or detention basins or otherwise treat them with appropriate BMPs.

SWPPP Tip!

Equipment/Vehicle Washing Measures

The following equipment/vehicle washing measures will help prevent stormwater pollution. Include the location of your washing facilities and your inspection and maintenance procedures in your SWPPP.

- Educate employees and subcontractors on proper washing procedures
- Clearly mark the washing areas and inform workers that all washing must occur in this area
- Contain wash water and treat and infiltrate it whenever possible
- Use high-pressure water spray at vehicle washing facilities without any detergents because water can remove most dirt adequately
- Do not conduct any other activities, such as vehicle repairs, in the wash area

requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include, at a minimum, the following:

- Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and measures to stop spills from leaving the site
- Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance
- Describe the procedures for immediate cleanup of spills and proper disposal
- Identify personnel responsible for implementing the plan in the event of a spill

P2 Principle 6: Develop a spill prevention and response plan.

Most state and EPA construction general permits require the preparation of spill prevention and response plans. Generally, these plans can be included or incorporated into your SWPPP. The plan should clearly identify ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage

SWPPP Tip!

Spill Prevention Measures

Additional spill prevention measures that will help prevent spills and leaks include the following:

- Describe and list all types of equipment to be used to adequately clean up the spill
- Provide proper handling and safety procedures for each type of waste
- Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks
- Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility

Take a Closer Look...

Spill Prevention, Control and Countermeasure (SPCC) Plan

Construction sites may be subject to 40 CFR Part 112 regulations that require the preparation and implementation of a SPCC Plan to prevent oil spills from aboveground and underground storage tanks. Your facility is subject to this rule if you are a nontransportation-related facility that:

- Has a total storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons and
- Could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States and adjoining shorelines

Furthermore, if your facility is subject to 40 CFR Part 112, your SWPPP should reference the SPCC Plan. To find out more about SPCC Plans, see EPA's website on SPCC at www.epa.gov/oilspill/spcc.htm

What does this mean to me?

Reporting Oil Spills

In the event of an oil spill, you should contact the National Response Center toll free at 1-800-424-8802 for assistance, or for more details, visit their website: www.nrc.uscg.mil/nrchp.html

Appendix K

Reference Documents

Construction SWPPP Reference Documents

Document	Title	Website/Update Information
General Construction Permit	National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order No. 99-08-DWQ, NPDES No. CAS000002) issued by the State Water Resources Control Board	http://www.swrcb.ca.gov/stormwtr/construction.html Once at the site click on the highlighted link titled "Construction General Permit, 99-08-DWQ". An update to the 99-08 Order is under consideration
General Linear Utility Permit	NPDES General Permit for Storm Water Discharges Associated with Construction Activity from Small Linear Underground/Overhead Projects, Water Quality Order No. 2003-0007 issued by the State Water Resources Control Board	http://www.swrcb.ca.gov/stormwtr/construction.html Once at the site click on the highlighted link titled "Small LUP General Permit".
EPA Guide for Construction Sites	Environmental Protection Agency (EPA) Developing Your Stormwater Pollution Prevention Plan – A Guide for Construction Sites EPA 833-R-060-04 May 2007	http://www.epa.gov/npdes/swpppguide
CASQA Construction Handbook	California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook Construction January 2003	http://www.cabmphandbooks.com Click on Construction. Also check for Errata Sheets
Caltrans Construction Site BMP Manual	California Department of Transportation (Caltrans) Stormwater Quality Handbook - Construction Site Best Management Practices March 1, 2003	http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm
Caltrans SWPPP/WPCP Preparation Manual	California Department of Transportation (Caltrans) Stormwater Quality Handbook - Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual – Construction Site Best Management Practices (BMPs) Reference Manual March 2007	http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm

For a more complete listing of additional references and suggested resources on storm water pollution prevention planning, see the Suggested Resources List attached as Appendix D to Section 2 (Standard Urban Storm Water Mitigation Plan) included in the City of Carlsbad Storm Water Standards Manual.